Joint Pub 3-09

Doctrine for Joint Fire Support

12 May 1998

PREFACE

1. Scope

This publication provides fundamental principles and doctrine for the command and control of joint fire support for US forces throughout the range of military operations.

a. This publication establishes doctrine and procedures for planning, coordinating, and executing joint fire support, to include common fire support coordination measures and allocation of fire support efforts to ensure that all forces are coordinated in their efforts to support the joint force commander's plan.

b. The central theme of this publication is describing the successful delivery of joint fire support to meet joint operational objectives. The publication describes procedures and methods to synchronize and coordinate fire support assets of the joint force. To be effective, the combining of joint fire support and maneuver relies on the fundamental and beneficial effects of teamwork, unity of effort, and the synchronization of capabilities in time, space, and purpose.

c. This publication provides guidelines to ensure the most effective employment of capabilities and forces assigned or attached to the joint force within existing organizational structures and procedures. It places emphasis on the roles of the joint force and component commanders in all aspects of joint fire support.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and

procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

For the Chairman of the Joint Chiefs of Staff:

DENNIS C. BLAIR
Vice Admiral, US Navy
Director, Joint Staff

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Overview

Successful employment of fires throughout the theater and/or joint operations area is required in joint operations.

Generating decisive combat power requires integrating all military capabilities to achieve strategic, operational, and tactical objectives. Inherent in joint operations is the successful employment of fires throughout the theater and/or joint operations area (JOA). The joint force and component commanders, with the assistance of their staffs, must **synchronize a variety of fires in time, space, and purpose** to increase the total effectiveness of the joint force.

The conceptual framework of fires consist of

The conceptual framework of fires consist of fires, joint fires, fire support, and joint fire support.

fires,

Fires. The effects of lethal or nonlethal weapons.

joint fires,

Joint Fires. Fires produced during the employment of forces from two or more components in coordinated action toward a common objective.

fire support,

Fire Support. Fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives.

and joint fire support.

Joint Fire Support. Joint fires that assist land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, and key waters.

Joint force commanders and their staffs must carefully balance resources and requirements over the course of a joint campaign or operation.

Although all component commanders structure their operations in support of the joint force commander's (JFC's) objectives, their forces usually face competing priorities with limited resources. **Guidance from the JFC assists component commanders' planning, coordination, and synchronization of limited fires resources.** Additionally, the JFC's organization of forces establishes the supported and supporting relationships essential to synchronizing operations, preventing fratricide, and maximizing the effectiveness of fires.

The land and naval force commanders are the supported commanders within the areas of operations (AOs) designated by the JFC. Within their designated AOs, land and naval force commanders synchronize maneuver, fires, and interdiction. To facilitate this synchronization, such commanders have the authority to designate the target priority, effects, and timing of fires within their AOs. Within the joint force theater and/or JOA, all missions must contribute to the accomplishment of the overall objective. Synchronization of efforts within land or naval AOs with theater- and/or JOA-wide operations is of particular importance. To facilitate synchronization, the JFC establishes priorities that will be executed throughout the theater and/or JOA, including within the land and naval force commanders' AOs. In coordination with the land and/or naval force commander, those commanders designated by the JFC to execute theater- and/or JOA-wide functions have the latitude to plan and execute these JFC prioritized operations and attack targets within land and naval AOs.

A key factor to the success of joint operations is joint fire support.

A key factor to the success of joint operations is joint fire support. Joint fire support links weapons effects to land, maritime, amphibious, and special operations forces movement, maneuver, and control of territory, populations, and key waters. The lethal and nonlethal effects from joint fire support are integrated with the fire and maneuver of the supported force to achieve synergistic results in combat power.

Joint fire support is **usually** executed within the boundaries of the land, maritime, or amphibious force. Therefore, joint fire support is conducted in accordance with the priority, timing, and effects established by the supported commander. Typically, joint fire support has an immediate or near term effect on the conduct of friendly operations.

Joint Fire Support System

Joint fire support consists of three subsystems:

Joint fire support is the synergistic product of three subsystems: target acquisition (TA); command and control (C2); and attack resources. Successful joint fire support depends on the detailed coordination of these subsystems. Integrating the processes and procedures of all three subsystems binds joint fire support resources together so the effects of each asset are synchronized to support the commander's intent and concept of operation.

target acquisition;

The goal of the TA effort is to provide timely and accurate information to enhance the attack of specified targets. **TA systems and equipment perform the key tasks of target detection, location, tracking, identification, classification, and battle damage assessment for joint fire support operations.** Components have a variety of organic and attached acquisition assets to assist in the TA effort, e.g., combat units, intelligence and electronic warfare systems, and manned and unmanned reconnaissance aircraft. Other aerial, subsurface, surface, space, national, and multinational systems also support the TA effort for joint fire support.

command and control;

A variety of command, control, communications, computers, and intelligence (C4I) systems contribute to successful execution of joint fire support. **Employing C4I systems with unity of effort is key to effective coordination of joint fire support.** C2 for joint fire support also includes the vertical and horizontal coordination accomplished by fire support coordinators, fire support coordination agencies, and liaison elements. Finally, successful C2 of joint fire support operations integrates fire support planning and coordination, tactical fire direction procedures, air operations, and technical fire direction procedures to achieve the supported commander's desired effects.

and attack resources.

Joint fire support attack resources typically include air-to-surface and surface-to-surface delivery assets. Joint fire support also includes nonlethal and disruptive operations, such as psychological operations and electronic warfare. Regardless of the attack system employed, joint fire support requires detailed airspace and ground coordination.

Planning and Coordination

Joint fire support planning and coordination are continuous processes.

Joint fire support planning and coordination are continuous processes that seek the timely and appropriate application of force to achieve the desired effects. **The effectiveness of this planning and coordination is predicated on commanders providing clear and precise guidance.** Such planning integrates and synchronizes joint fire support at tactical and operational levels. To achieve this synchronization, commanders and staffs must have thorough knowledge of each Service's doctrine, major systems, significant capabilities and limitations, and often their tactics, techniques, and procedures.

Fire support plans focus on four basic fire support tasks.

Objectives to support the scheme of maneuver are usually restated in terms of forces, functions, and facilities that require the allocation of joint fire support assets. Fire support staffs at each echelon are responsible for advising commanders on the best use of available fire support resources, developing fire support plans, and implementing approved fire support plans. Fire support plans focus on four basic fire support tasks: **(1) support forces in contact; (2) support the concept of operation; (3) synchronize fire support; and (4) sustain fire support operations.**

JFC's GUIDANCE FOR JOINT FIRE SUPPORT

- Establishes joint force policies, procedures, and planning cycles.
- Identifies joint fire support assets for planning purposes.
- Designates priority for employing target acquisition assets.
- Discusses areas that require joint fire support to support operational maneuver.
- Identifies high value and high-payoff targets for acquisition and attack.
- Sequences anticipated joint fire support requirements.
- Establishes fire support coordinating measures (if required).

Fire support planning principles.

Fire support planning and coordination involve several principles stemming from the basic fire support tasks.

Plan Early and Continuously
Ensure the Continuous Flow of Targeting Information
Consider Using All Available Lethal and Nonlethal Attack Means
Use the Lowest Echelon Capable of Furnishing Effective Fire Support
Furnish the Type of Fire Support Requested
Use the Most Effective Fire Support Means Available
Avoid Unnecessary Duplication
Coordinate Airspace
Provide Adequate Support
Provide for Rapid Coordination
Protect the Force
Analyze Effects
Provide for Flexibility

Effective joint fire support coordination involves operational, tactical, and technical considerations and the exercise of fire support command, control, and communications. Coordination procedures must remain flexible and responsive while maintaining positive management and control of attacks. Further, the coordination process must identify potential fratricide situations and minimize the risk.

Execution

Joint fire support may come from outside a unit's chain of command.

Joint fire support may come from organic or nonorganic sources. **The effects from all sources are maximized when executing preplanned joint fire support. The complexity of joint fire support operations requires detailed planning and coordination that culminates in precise execution.** Joint fire support engagements follow detailed procedures allowing simultaneous attacks from air, land, sea, and special operations forces. Usually, joint fire support operations are preplanned using established fire support C2 liaison elements to communicate inter-component requests.

CONCLUSION

Commanders and their staffs must synchronize joint fire support in time, space, and purpose to increase the total effectiveness of the joint force. The key to effective synchronization of joint fire support is thorough and continuous planning followed by aggressive coordination efforts and vigorous execution. Synchronized and integrated joint fire support links weapons effects to the JFC's campaign or operation objectives through component operations.

CHAPTER I
OVERVIEW

"Joint fire support includes those fires that assist land and amphibious forces to maneuver, and control territory, populations, and key waters."

Joint Pub 3-0, Doctrine for Joint Operations

1. Introduction

The joint force commander (JFC) and component commanders, with the assistance of their staffs, synchronize fires in time, space, and purpose to increase the total effectiveness of the joint force. The JFC organizes forces to accomplish the assigned mission based on the concept of operations. The organization should be sufficiently flexible to meet planned phases of contemplated operations and any development that may require a change in plan. The JFC will establish subordinate commands, assign responsibilities, establish or delegate appropriate command and support relationships, and establish coordinating instructions for the component commanders. The JFC provides guidance to integrate components' capabilities and synchronize the execution of fires. Systems for delivering firepower are limited in number, and there are competing priorities for employing these assets. JFCs and their staffs must carefully balance resources and requirements over the course of a joint campaign or operation to ensure the appropriate mix of forces and capabilities. The JFC must ensure joint and component capabilities and procedures are integrated to identify and track targets, identify attack assets, and perform combat assessments.

a. **Fires. Fires are defined as the effects of lethal or nonlethal weapons.** Fires include both lethal and nonlethal weapons effects, because both types of effects must be synchronized and integrated to achieve synergistic results. These fires can be delivered by air, land, naval, special operations forces (SOF), and space assets. Lethal weapon effects include those from naval surface fire support, indirect fire support, maneuver operations, SOF direct action operations, air operations, and even nuclear weapons. Nonlethal weapons effects include those from electronic warfare (EW), certain psychological operations (PSYOP) such as leaflet drops, some information operations (IO) such as disrupting the enemy's information networks, and the use of munitions such as illumination, smoke, or incapacitating agents.

b. **Joint Fires. Joint fires are defined as fires produced during the employment of forces from two or more components in coordinated action toward a common objective.** Joint fires are weapon effects from joint operations and include, but are not limited to, weapon effects from such operations as joint suppression of enemy air defenses (J-SEAD) and naval surface fire support (NSFS) provided to assist air, land, amphibious, or special operations forces, joint air operations, joint maneuver operations, and joint interdiction operations.

c. **Fire Support. Fire support is defined as fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives.** Fire support is the collective and coordinated employment of lethal and nonlethal fires against targets at both the tactical and operational levels of war. The ability to employ all available fire support as a synchronized effort integrated with the scheme of maneuver is accomplished through the process of fire support planning, coordination,

Joint fires encompass a wide range of weapons effects from joint operations, including naval surface fire support.

and execution. Effective fire support ensures the right targets are adequately attacked to achieve the commander's intended effects.

d. **Joint Fire Support. Joint fire support is defined as joint fires that assist land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, and key waters.** Joint fire support may include, but is not limited to, the lethal effects of close air support (CAS) by fixed- and rotary-wing aircraft, NSFS, artillery, mortars, rockets, and missiles, as well as nonlethal effects such as EW. Synchronization of joint fire support with the fire and maneuver of the supported force is essential.

"It is firepower, and firepower that arrives at the right time and place, that counts in modern war."

B.H. Liddell Hart,
Thoughts on War, 1944

2. Concept of Fires

A concept of operations describes how the commander visualizes the campaign, major operation, or phase of an operation unfolding based on the selected courses of action (COAs). The concept expresses the what, where, how, and the desired effects upon the enemy. The commander provides sufficient detail for the staff and subordinate commanders to understand what they are responsible for. **Integral to the concept of operations is the concept of fires; for a JFC this typically equates to joint fires. This concept describes how tactical, operational, and strategic fires will be integrated and synchronized.** The JFC determines the enemy's center(s) of gravity (COGs) and how the application of fires can assist in their destruction or neutralization. The JFC can also highlight the anticipated critical actions, times, and places during combat that would serve as triggers for friendly action. The JFC determines the sequencing of key events and emphasizes the desired end state. While some fires will support operational and tactical movement and maneuver by land, maritime, amphibious, and special operations forces, other fires are independent of maneuver and orient on achieving specific operational and strategic effects that support the JFC's objectives. **The JFC provides guidance on types of targets and priorities and what the effects of fires should do to the enemy** (e.g., deny, disrupt, delay, suppress, neutralize, destroy, and influence). In addition, **the JFC provides targeting guidance** on munitions

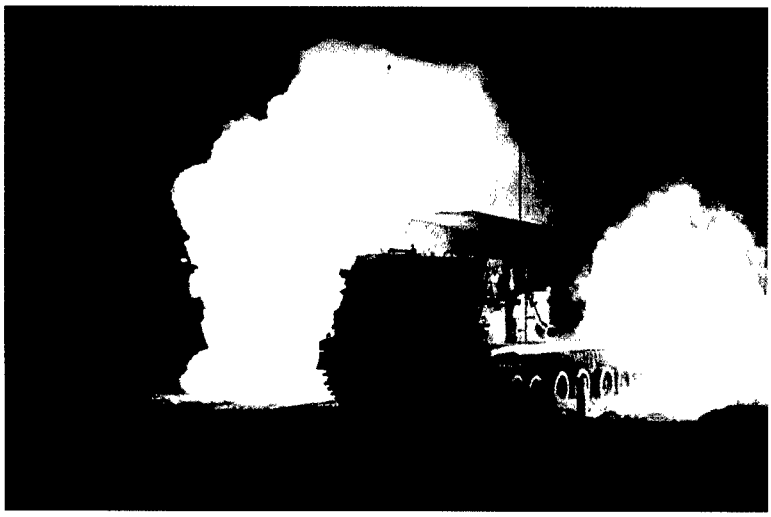
usage and restrictions. The JFC also provides guidance on targets that may not be engaged under the law of war or applicable rules of engagement (ROE). The JFC may also make available specific assets for joint operations area (JOA)-wide employment, such as a certain number of Army Tactical Missile Systems (ATACMSs), wind corrected munitions dispenser fuzed weapons, or Tomahawk missiles.

3. Employment Considerations

a. **Complementary and Interdependent.** The JFC must integrate diverse fires assets from air, land, naval, and special operations forces. To maximize the effects of fires, complementary and interdependent operations are required. These operations include planning, acquisition, execution, and assessment efforts.

b. **Supported and Supporting Relationships.** The land and naval force commanders are the supported commanders within the areas of operations (AOs) designated by the JFC. Within their designated AOs, land and naval force commanders synchronize maneuver, fires, and interdiction. To facilitate this synchronization, such commanders have the authority to designate the target priority, effects, and timing of fires within their AOs. Within the joint force theater and/or JOA, all missions must contribute to the accomplishment of the overall objective. Synchronization of efforts within land or naval AOs with theater- and/or JOA-wide operations is of particular importance. To facilitate synchronization, the JFC establishes priorities that will be executed throughout the theater and/or JOA, including within the land and naval force commanders' AOs. In coordination with the land and/or naval force commander, those commanders designated by the JFC to execute theater- and/or JOA-wide functions have the latitude to plan and execute these JFC prioritized operations and attack targets within land and naval AOs.

c. **Unity of Effort.** Component forces' planning, execution, and target acquisition (TA) capabilities often overlap. Due to the diversity of systems capable of providing fires, command and control (C2), and TA, **the JFC must ensure unity of effort throughout the joint force**.



Effective fire support ensures the right targets are adequately attacked to achieve the commander's intended effects.

4. Fires Integration

The JFC is responsible for ensuring the synchronization and integration of fires. The JFC must have systems that allow rapid response to changes as they occur. In this effort, liaison elements play a pivotal role in the coordination of joint fire support. The challenge for the JFC is to integrate and synchronize the wide range of capabilities at the JFC's disposal to achieve the campaign and/or operation objectives. The JFC's intent will often be to bring force against the opponent's entire structure in a near simultaneous manner that will overwhelm and cripple the enemy's capabilities and will to resist. In some operations, political constraints may restrict the use of lethal weapons and shift priority to the use of nonlethal weapons.

a. **Command, Control, Communications, Computers, and Intelligence (C4I) Agencies. The JFC must synchronize efforts in a number of C4I arenas**, such as reconnaissance, surveillance, and target acquisition (RSTA). Appropriate joint, Service, and national agencies engaged in RSTA activities must support the efforts to integrate and synchronize fires. To support the synchronization of fires, C4I must be responsive to the user, and be capable of real time information management and data processing. Refer to Joint Pub 2-0, "Doctrine for Intelligence Support to Joint Operations," Joint Pub 3-55, "Doctrine for Reconnaissance, Surveillance, and Target Acquisition (RSTA) Support for Joint Operations," and Joint Pub 6-0, "Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations."

b. **Operation Plans and Orders.** Plans and orders are essential to effectively integrate and synchronize joint force fire assets.

c. **Joint Targeting Coordination Board (JTCB).** The JFC may establish and task an organization to accomplish broad targeting oversight functions or may delegate this responsibility to a subordinate commander. **Typically, JFCs organize a JTCB and, if the JFC so designates, the JTCB may be either an integrating center to accomplish the broad targeting oversight functions, or a JFC-level review mechanism.** In either case, it needs to be a joint activity with representatives of the joint force staff, all components and, if required, their subordinate units. **The role and composition of the JTCB are defined by the JFC** and typically includes reviewing target information, developing targeting guidance and priorities, and preparing and refining joint target lists. The JTCB must also maintain a complete list of restricted targets and areas where SOF are operating, to avoid endangering current or future operations. **The JTCB may assist the JFC in developing or revising the targeting guidance and/or priorities. The JTCB maintains a macro-level view of the area of responsibility and/or JOA** and ensures targeting nominations are consistent with the JFC's campaign or operation plan (OPLAN). In a multinational environment, the JTCB may be subordinate to a multinational targeting coordination board. See Joint Pub 3-0, "Doctrine for Joint Operations."

d. **Staff Augmentation.** Peacetime staffing of combatant commands and components is normally sufficient to plan and execute operations during the early stages of a contingency. However, this staffing may not be sufficient to accomplish the full range of planning and coordination requirements associated with large-scale, sustained combat operations. **It may be necessary to augment many of the JFC's staff sections for combat operations.**

- The Operations Division (J-3) may require augmentation to fulfill operational requirements. The J-3 serves as the JFC's principal staff advisor for the coordination, integration, and synchronization of joint fires with other

major elements of the campaign/ operation such as maneuver, information operations, special operations, and logistics. This function may include the following tasks:

•• Develop estimates of the situation and COAs.

•• Develop mission-type orders and guidance for JFC approval.

•• Develop operation orders (OPORDs), and OPLANs.

•• Develop theater/JOA-wide joint targeting guidance, objectives, and priorities for JFC approval.

•• Coordination of combat assessment efforts by the joint force.

•• Coordination of ROE.

•• Assessments of the campaign or major operation.

•• Recommend, coordinate, review, designate, and disseminate fire support coordinating measures (FSCMs).

•• Maintenance of munitions supply status and logistic concerns effecting joint force operations.

•• Ensure IO are fully integrated and synchronized with operations.

•• Coordinate closely with the Intelligence Division to ensure that the commander's priority intelligence requirements to support targeting are fully integrated into the intelligence collection plan.

- If a JTCB is established by the JFC the J-3 will normally organize the JTCB, serve as a member, and be responsible for the following tasks (These tasks do not apply if the JFC delegates broad targeting oversight functions to a subordinate commander):

  •• Develop the role, functions, and agenda of the JTCB for JFC approval.

  •• Review targeting information as it pertains to JFC targeting guidance, objectives, and priorities.

  •• Serve as executive assistant for administrative and logistic support.

- J-3 staffing will vary based on how the combatant commander formed the joint force for the contingency operation from the peacetime organization. **The J-3's augmentation requirements will depend on a variety of factors, including the mission, expected complexity and duration of the operation, peacetime staffing levels, expertise of the new operations staff, and the joint force composition.** Such augmentation should provide the capability to accomplish fires planning and coordination functions relevant to the contingency at hand.

  •• **Some joint force operations may require only limited augmentation.** In this case, the JFC might choose to absorb augmentees directly into existing joint force staff sections and divisions. For example, the JFC may augment the joint operations center with experts from the components to ensure continuous operations capability.

  •• The JFC may approve the formation within the J-3 of a joint fires element (JFE). The JFE is an optional staff element that provides recommendations to the J-3 to accomplish fires planning and coordination. The JFE assists the J-3 to accomplish responsibilities and

tasks as a staff advisor to the JFC. Specific duties would be assigned by the J-3 with approval by the JFC and may include any or all of the J-3's tasks previously identified. When established, this element would be composed of a variety of experts from the JFC's staff (including the J-3's staff), the components, the combatant command, and elsewhere as needed. The JFE would provide the capability to accomplish fires planning and coordination functions.

e. **Prevention of Fratricide.** The destructive power and range of modern weapons, coupled with the high intensity and rapid tempo of modern combat, increase the potential for fratricide. Risk management must become fully integrated while planning and executing operations. **Commanders must identify and assess situations that increase the risk of fratricide.** Commanders then incorporate into all plans guidance to minimize and control risks by implementing preventive measures. The primary preventive measures for limiting fratricide are command emphasis, disciplined operations, close coordination among component commands, rehearsals, effective procedures, and enhanced situational awareness. Additionally, ROE can contribute to minimizing fratricide by specifying limitations and circumstances to commanders and forces for initiating and continuing engagements.

5. Maneuver

a. **Combining joint fire support and maneuver relies on the fundamental and beneficial effects of teamwork, unity of effort, and synchronization of capabilities in time, space, and purpose.** As a principle of war, maneuver is conducted to achieve positional advantage in respect to the enemy in order to accomplish the mission. Maneuver positions forces at decisive points to achieve surprise, psychological shock, physical momentum, and massed effects. The focus of maneuver is to render opponents incapable of resisting by shattering their morale and physical cohesion (their ability to fight as an effective, coordinated whole) rather than by destroying them physically through attrition. See Joint Pub 3-0, "Doctrine for Joint Operations," for a more detailed discussion on maneuver.

"Battles are won by fire and by movement. The purpose of the movement is to get the fire in a more advantageous place to play on the enemy. This is from the rear or flank."

George S. Patton, Jr.,
War As I Knew It, 1947

b. **Maneuver and fires are complementary functions.** Maneuver and fires are complementary functions which are essential to achieving JFC objectives. Maneuver is the movement of forces in relation to the enemy to secure or retain positional advantage, usually in order to deliver or threaten delivery of fires in order to accomplish the mission. The principal purpose of maneuver is to gain positional advantage relative to enemy COGs in order to control or destroy those COGs. Maneuver of forces relative to enemy COGs can be key to the JFC's campaign or major operation. Through maneuver, the JFC concentrates forces at decisive points to achieve surprise, psychological shock, and physical momentum. Successful maneuver requires fires and movement. Fires neutralize, destroy, and suppress enemy forces and disrupt enemy maneuver, which permits the maneuver of friendly forces. Fires may be used separately from or in combination with maneuver to neutralize or destroy the enemy. Through effective maneuver of friendly forces, the enemy can be placed into a position of disadvantage and a dilemma. If the enemy remains in position, their forces may be isolated and destroyed by fires delivered by land, air, maritime, and special operations forces. If the enemy withdraws, attempts to

The JFACC supports the JFC by providing close air support missions throughout the JOA or theater.

establish new defensive positions, or maneuvers their forces for counterattack, they may be exposed to unacceptable losses caused by the effective use of fires. When exploiting the effects of maneuver, commanders use fires to neutralize enemy forces and destroy their will to fight. Maneuver and fires are complementary dynamics of combat. Although one might dominate a phase of the battle, the synchronized effects of both characterize operations. Their synchronized use makes the destruction of larger enemy forces feasible and enhances the protection of friendly forces.

6. Joint Fire Support

Joint fire support can be delivered by air, land, sea, SOF, and space assets against surface targets anywhere in the JOA and **is usually executed within the boundaries of the land, maritime, or amphibious force**. However, the requirement for **joint fire support is not necessarily confined to a land, maritime, or amphibious operational force commanders' AOs.** SOF may need CAS and other joint fire support at locations well beyond the land, maritime, and amphibious operational force commanders' AO. Here the appropriate SOF commander is the supported commander for synchronizing supporting fires with operations.

a. **Effects.** Typically, **the execution of joint fire support has an immediate or near term effect on the conduct of friendly surface operations**. Component commanders employ joint fire support means, in support of their concept of operations, by synchronizing fire support against the enemy's weapons systems, formations, and C2 sites. Detailed integration and coordination with supported forces is required. Preplanning allows detailed integration of fire support assets for anticipated time-sensitive targets.

b. **Nonlethal Means.** Nonlethal fires should be integrated into operations to produce synergistic results. Examples are EW, certain PSYOP, smoke operations, and some command and control warfare (C2W) operations which deceive the enemy, disable the enemy's C2 systems, and disrupt operations. The employment of nonlethal fires is especially important in military operations other than war (MOOTW) when restraint and limitations on the use of deadly force are necessary.

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CHAPTER II
JOINT FIRE SUPPORT SYSTEM

"A superiority of fire, and therefore a superiority in directing and delivering fire and in making use of fire, will become the main factors upon which the efficiency of a force will depend."

Marshal of France Ferdinand Foch
Precepts and Judgments, 1919

1. Introduction

This chapter reviews the joint fire support system and its intended effects. As shown in Figure II-1, **joint fire support is the synergistic product of three subsystems: TA, C2, and attack resources**. The successful application of joint fire support depends on the close coordination of these subsystems. Joint fire support must function in a coordinated and integrated manner to support the commander's objectives. The function of joint fire support binds fire support resources together so that the multiple effects of each asset are synchronized to support the commander's intent and concept of operation.

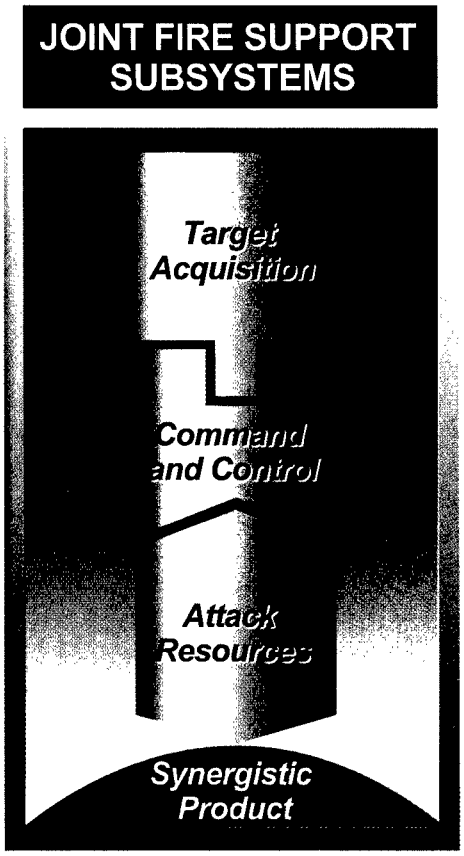

Figure II-1. Joint Fire Support Subsystems

2. Target Acquisition

a. Joint and component plans establish priorities for specifying, locating, and attacking vulnerable enemy functions to accomplish the joint force's mission. The joint force and component staffs identify high priority targets based on the JFC's guidance. **TA systems and equipment perform the key tasks of target detection, location, tracking, identification, and classification for joint fire support operations.** The goal of the TA effort is to provide timely and accurate information to permit the attack of specified targets. It is the product of the intelligence cycle: planning and direction, collection, processing and exploitation, analysis and production, dissemination and integration, and evaluation and feedback. The demands of a fluid and rapidly changing situation may dictate that **target intelligence be based more on combat information than on a refined and finished product**. Like other aspects of planning, available time will determine the detail and precision of TA support. Refer to Joint Pub 2-0, "Doctrine for Intelligence Support to Joint Operations," Joint Pub 2-01.1, "Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting" and Joint Pub 3-60, "Joint Doctrine

Fire finder radar systems provide time-sensitive target information.

for Targeting" for a discussion of intelligence and targeting cycles.

b. **Target Acquisition Assets.** Enemy targets must be detected, located, identified, and prioritized with sufficient accuracy and speed to permit effective attack. To assist with TA, components have organic and attached acquisition assets and require access to intelligence gathered by other assets. The fire support system consolidates targeting information from many different agencies, to include maneuver forces, intelligence units, special reconnaissance operations, and sophisticated satellite systems.

- **Combat Units. All combat units can be an important source of TA intelligence.** Individual units (such as platoons or single aircraft) can provide time-sensitive combat information about enemy troops and equipment. Surveillance radars, observation posts, reconnaissance patrols, and scouts are also useful in collecting information.

- **Reconnaissance.** Ground, maritime, and air reconnaissance elements are valuable information sources because of their unique missions and training. Attack helicopters, air cavalry units, and various other component aircraft are well suited for the TA role because they acquire targets both visually and electronically. These units can engage the targets themselves, direct another attack asset into position, or call for indirect fires. Additionally, they have the capability to perform battle damage assessment. SOF collect and report information beyond the sensing capabilities of tactical collection systems by conducting special reconnaissance missions to verify the capabilities, intentions, and activities of the enemy. SOF can also collect data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. Special reconnaissance missions include TA, area assessment, and poststrike reconnaissance.

- **Intelligence and Electronic Warfare (IEW) Systems. Appropriate IEW agencies execute missions in support of the collection plan.** IEW assets used in collection plan missions are of five general types: signals intelligence, imagery intelligence, measurement and signature intelligence, human intelligence (HUMINT), and open-source intelligence. For further

information refer to Joint Pub 3-51, "Electronic Warfare in Joint Military Operations."

- **Joint Surveillance, Target Attack Radar System (JSTARS).** JSTARS is a joint surveillance, targeting, and battle management C2 system designed to provide near real time, wide-area surveillance and targeting information on moving and stationary ground targets. JSTARS is a theater wide battle management and/or C2 platform that conducts ground surveillance to develop an understanding of the enemy situation and supports attack operations and/or targeting that contribute to the delay, disruption, and destruction of enemy forces. These functions support the primary mission of JSTARS, which is to provide dedicated support of ground commander requirements. **However, the JFC determines the most effective use of JSTARS based on the situation and the concept of operations.** JSTARS is also capable of supporting air operations to include air interdiction, close air support, offensive counterair, and other special missions spanning the range of military operations. JSTARS mission priorities are established by the JFC based upon the overall campaign objectives. The system has both airborne and ground-based segments. The airborne segment is the JSTARS aircraft (E-8C) (modified Boeing 707-300 series) equipped with a phased-array ground surveillance radar, an operations and control subsystem, and a communications subsystem. The E-8C is equipped with two Joint Tactical Information Distribution System class 2 terminals. The E-8C's advanced multi-mode radar can operate in wide-area surveillance and/or moving target indicator (MTI) and synthetic aperture radar (SAR) modes. The ground-based segment consists of common ground stations (CGSs) containing two operator work stations that receive data from the E-8C and other intelligence sensors. Ground crews analyze and disseminate JSTARS data to air and ground commanders. The E-8C and CGSs exchange information via a JSTARS-unique, line of sight communications link called the Surveillance Control Data Link. JSTARS can detect, locate, and track moving and stationary ground targets. It has a limited capability to detect and locate helicopters and other slow and low-flying vehicles, and rotating antennas. JSTARS provides ground and air commanders with situation development, targeting, attack planning, and limited post attack assessment information.

  •• **JSTARS Taskings.** JSTARS tasking are of two types: **preplanned tasks** and **dynamic requests**. Preplanned tasks are based on ground and air commanders' surveillance requirements. **Dynamic requests**, on the other hand, are real time requests from ground and air commanders requesting changes or additions to JSTARS support that are communicated directly to the E-8C mission crew while airborne.

  •• The JSTARS' Mission Crew Commander responds to dynamic requests by prioritizing and supporting the requests in accordance with JFC guidelines. By supporting both preplanned taskings and dynamic requests, **JSTARS provides ground and air commanders with the surveillance, target detection, and tracking information needed to better understand the activity within their operational areas.**

- **Airborne Reconnaissance Low-Multifunction (ARL-M).** The ARL-M is a multifunction day/night aerial system

JSTARS

The joint surveillance target attack radar system was employed during DESERT SHIELD and DESERT STORM even though the system had not completed developmental test and evaluation. The two available aircraft (a Boeing 707 airframe, designated an E-8A) flew 54 combat sorties with a system availability exceeding 80 percent. JSTARS detected and tracked virtually everything that moved and some things that did not, including Iraqi concertina wire erected as a barrier across highways. The systems located, identified, and targeted assembly areas, POL storage sites, Scud assembly areas and missiles, convoys, trucks, tanks, and even surface-to-air missile sites and artillery. Linked with AWACS aircraft by the Joint Tactical Information Distribution System, and teamed with the F-15Es, F-16s, and F-111s, JSTARS denied the enemy sanctuary at night.

SOURCE: DOD Final Report to Congress
Conduct of the Persian Gulf War, April 1992

that provides dedicated intelligence and TA support, typically to the ground commander. The system provides RSTA with MTI and SAR and has the additional benefit of also having a communications intelligence (COMINT) capability on board with automatic cross-cueing between the radar and COMINT suite. The ARL-M can complement JSTARS in TA if employed in the same area.

- **Unmanned Aerial Vehicles (UAVs).** UAVs provide timely and highly accurate intelligence required for attacking and assessing high-payoff targets (HPTs). Systems such as UAVs offer significant capabilities. One significant advantage of these systems is that they minimize risk to friendly personnel. UAVs can provide a broad range of collection capabilities, including electronic intelligence, SAR, electro-optical, infrared imagery, and real time television imagery.

- **Other Assets.** Each component operates intelligence collection systems as TA assets. Joint Pub 3-55, "Doctrine for Reconnaissance, Surveillance, and Target Acquisition (RSTA) Support for Joint Operations," discusses planning and employment of these assets. These TA assets provide the information required to conduct successful joint fire support. They are categorized as aerial systems (manned and unmanned), subsurface, surface systems (ground and sea), military space systems, national systems, and combined systems.

3. Command and Control

C2 systems bring all information together for collation and decision making. C2 systems, personnel, equipment, and a variety of related procedures support the execution of joint fire support missions. **Unity of effort is key to the effective coordination of joint fire support.** Vertical and horizontal coordination is also essential for effective joint fire support. For this reason, Service and functional components provide a hierarchy of fire support coordinators, fire support coordination agencies, and liaison officers. These fire support coordinators have one goal in common — to efficiently direct the use of fire support to accomplish the mission.

a. **Command Relationships. Establishing supported and supporting relationships among or between components helps the JFC integrate**

operations. Command relationships are defined and clarified in Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," and Joint Pub 3-0, "Doctrine for Joint Operations."

b. **Fire Support C2.** C2 for joint fire support requires intensive coordination. Two interrelated functions account for the complexity of this coordination. The first is the overall C2 process for employing fire support assets within a Service or functional component during joint operations. The second involves the planning required to execute joint fire support missions.

- The C2 process for employing fire support assets includes fire support planning and coordination, tactical fire direction procedures, air operations procedures, and other general supervisory tasks. Chapter III, "Planning and Coordination," discusses these aspects further.

- Planning provides the requisite technical parameters — including weather data, terrain, target location data, defenses, and weapon system data — needed to deliver accurate joint fire support. Technical planning is normally accomplished within a single Service or functional component, although some input of data may come from outside the Service or functional component. Technical fire direction for land systems may be provided by automated systems such as the Army Fire Direction System, the Fire Direction Data Manager, or the Marine Corps Fire Support System. Planning data for airstrikes is based on the avionics and capabilities of the specific aircraft and the associated weapons characteristics.

c. **Joint Force Staff Functions. To effectively plan joint fire support, planners must understand the objective, purpose of the operation, and the commander's intent** (defined by purpose, method, and the end state to be achieved). JFCs subordinate to combatant commanders will translate commander in chief (CINC) guidance and theater strategy into clearly defined and attainable operational level objectives. They then write supporting campaign or major OPLANs and OPORDs to attain those objectives. These plans and orders will contain a concept of operations that describes joint force employment. **Joint fire support priorities and goals are typically**

C2 systems bring the resources of fire support systems together for collation and decision making.

listed as part of the overall joint fires priorities and goals within the concept of operations. Joint Pub 5-00.1, "Joint Tactics, Techniques, and Procedures for Campaign Planning," contains specific campaign planning tools. The commander's estimate and the concept of operations assist in focusing the employment of all assets, to include those providing joint fire support.

- **Commander and Staff Estimates. Estimates help the commander clearly understand the situation and select the best COA.** The estimate results in an accurate visualization of the current enemy and friendly situation, a visualization of the goal or mission, and a clear expression of COAs. Consideration of how to employ fires continues throughout the estimate process.

- **Concept of Operations.** The concept of operations is key in describing how the commander visualizes the operation unfolding. **The concept is based on the commander's selected COA and describes where and how friendly forces engage the enemy.** In the concept of operations, the commander will describe how the actions of each of the components or supporting commands fit together to accomplish the assigned mission. The concept of operations discusses joint force maneuver and the application of fires. The fires discussion should reflect the JFC's concept for application of available fires assets. Guidance for joint fires should address the following:

  •• Joint force policies, procedures, and planning cycles.

  •• Joint fire support assets for planning purposes.

  •• Priorities for employing TA assets.

  •• Areas that require joint fire support to support operational maneuver.

  •• High-value targets (HVTs) and HPTs.

  •• Anticipated joint fire support requirements.

  •• Fire support coordination measures (if required).

4. Role of Fire Support C2 Agencies

The following describes **key Service and functional component fire support C2 agencies** (usually referred to as a fire support element [FSE] Army or fire support coordination center [FSCC] Marine Corps) that support joint force operations. These organizations advise commanders on the use of joint fires, joint fire support, allocation of resources, distribution of CAS sorties, logistics considerations, TA, and meteorology and survey.

a. **Army Joint Fire Support C2 Agencies.** FSEs are established from battalion to corps level. Fire support officers (FSOs) perform FSE functions at company and/or team level units; corps and echelons above corps (EAC) level units (and some divisions) have a fire support staff capability in the deep operations coordination cell (DOCC). These elements advise the maneuver commander on capabilities and the effective use of fire support assets, and assist in the planning and coordination of fire support.

- **Commanders. The Army employs field artillery commanders and staff officers as fire support coordinators (FSCOORDs).** FSCOORDs exist at all echelons, from company through corps. Typically, the senior field artillery commander is designated the FSCOORD and therefore serves as the maneuver commander's principal

assistant for the integration and application of fire support. Each maneuver command echelon has an FSE provided by its supporting field artillery command. Special fire support organizations can be formed for rear area operations at division, corps, and Army commands. The FSCOORD, if appointed at the designated senior force level, would probably be physically located at that particular headquarters.

- **Battlefield Coordination Detachment (BCD).** The Army provides a **BCD as the interface** for selected battlefield functions **between the Army forces (ARFOR) and the joint force air component commander (JFACC), or the Air Force forces (AFFOR) component commander**. A BCD is collocated with the joint air operations center (JAOC) or the Air Force air operations center (AOC). The BCD interface includes exchanging current intelligence and operational data, support requirements, coordinating the integration of ARFOR requirements for airspace control measures (ACMs), joint FSCMs, and theater airlift. A BCD can also be tasked to perform ARFOR interface duties for subordinate Army headquarters.

  •• The BCD is not an FSE, but acts as the **ARFOR senior liaison element** and also can perform many fire support functions. The BCD commander presents ARFOR positions to the JFACC or AFFOR. The BCD coordinates the ARFOR commander's requirements for preplanned CAS and air interdiction to the AOC. The BCD also passes JFACC requests for ARFOR supporting fires. The BCD assists synchronization of joint air operations with Army maneuver and fires and the exchange of operational and intelligence data. This interactive joint coordination process is expedited by the Advanced Field Artillery Tactical Data System through its interface with the Air Force contingency theater automated planning system. Additionally, the ARFOR commander can delegate authority to the BCD to make certain decisions.

  •• The BCD must be prepared to operate with the Air Force, Marine Corps, and Navy components, depending upon which component is appointed as the JFACC (See Figure II-2).

- **Liaison.** Although liaison elements from other Services are found at supported Army units, **various liaison elements** such as Marine liaison, naval air liaison, special operations liaison, and Navy surface operations liaison elements **usually link up with the BCD at the JAOC when appropriate**. Typically, ground liaison officers for fighter and airlift wings and other liaison officers may also be provided.

- **Deep Operations Coordination Cell.** The DOCC is an Army organization frequently used at division, corps, and army levels that **serves as the center for focusing and integrating the planning, coordination, synchronization, and execution functions for deep operations**. Working with the BCD and other coordination elements, the DOCC will plan and coordinate, as appropriate, the use of fires, combined arms maneuver, SOF, and Army airspace command and control (A2C2) in support of Army deep maneuver operations.

b. **Naval Joint Fire Support C2 Agencies.** Various agencies and elements are established within the Marine air-ground task forces (MAGTFs) to assist commanders in the execution of their fire support responsibilities. These agencies may be used for either landing force or sustained land

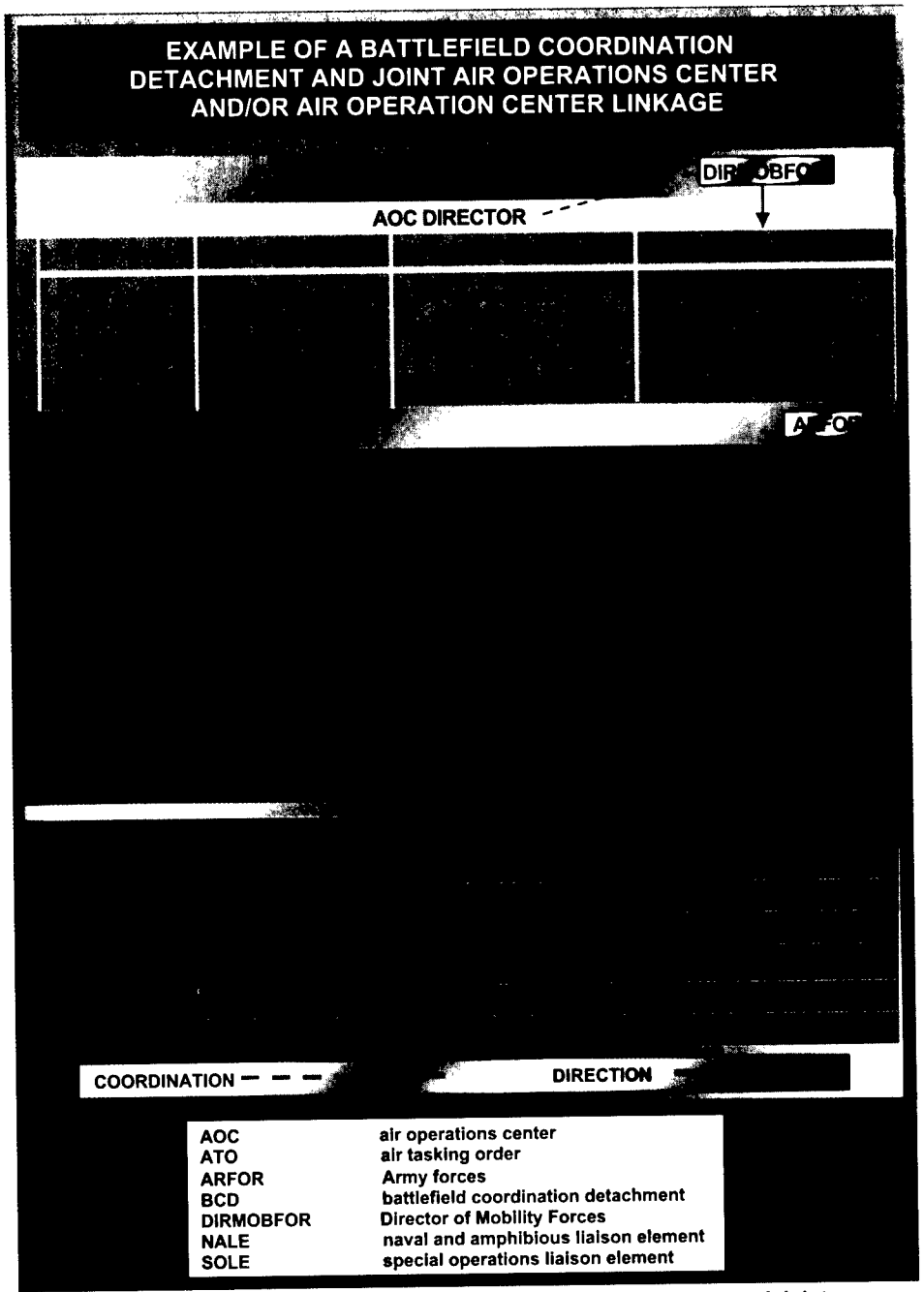

Figure II-2. Example of a Battlefield Coordination Detachment and Joint Air Operations Center and/or Air Operation Center Linkage

operations. **The Marine expeditionary force (MEF) command element organizes a force fires coordination center (FFCC), which is responsible for overall fire support coordination.** At each level below the MEF command element (division, regiment, and battalion), an FSCC is established as an advisory and coordination agency within the

ground combat element (GCE). The FFCC and each FSCC is staffed with representatives of the various Marine Corps and Navy supporting arms whose roles differ at the various levels. During the initial phase of an amphibious operation, while control and coordination responsibility of supporting arms is still afloat, the MAGTF typically provides the landing force representation in the Navy's supporting arms coordination center (SACC).

- **Commanders. In an amphibious operation, the commander, amphibious task force (CATF) exercises the overall responsibility for coordination of NSFS, air support, and landing force artillery fire support.** When the commander, landing force (CLF), normally the MAGTF commander, is established ashore, the CATF may pass this responsibility to the CLF. Once the passage of control ashore is executed, the CLF will coordinate fires within the AO. When control is afloat, the senior naval fire support coordination agency is the SACC. See Joint Pub 3-02, "Joint Doctrine for Amphibious Operations," and Joint Pub 3-02.1, "Joint Doctrine for Landing Force Operations," for further information.

- During amphibious operations and before control is passed ashore, the Navy tactical air control center (Navy TACC) controls all air operations within the amphibious objective area (AOA). Like the Air Force AOC, the Navy TACC is responsible for planning and conducting CAS. Its air support control section coordinates with the SACC to integrate CAS and other supporting arms.

- **Liaison.** Landing force representatives coordinate requests of landing force elements ashore, monitor fire support activities, and plan additional requirements. This includes continued liaison with the SACC and close coordination with the Marine Air Command and Control System (MACCS). Landing force representatives in the SACC make appropriate recommendations regarding troop safety, type and means of delivery, and record all target information for future reference ashore. Once control passes ashore, the MAGTF commander executes responsibilities through the FFCC ashore. This responsibility includes continued liaison with the SACC along with close coordination with the MACCS (See Figure II-3).

- **Supporting Arms Coordination Center.** Upon initiation of planning, the CATF establishes the SACC. **The SACC locates aboard an amphibious command ship configured with the communications facilities required to coordinate artillery, air, and naval surface fires.** Functioning as an FSE for the naval forces, the SACC is supervised by the supporting arms coordinator. During amphibious operations, the SACC is the primary agency that coordinates and controls all supporting fires for the CATF in order to establish the landing force ashore.

- **Navy Tactical Air Control System (NTACS).** NTACS is the principal air control system afloat. The senior Navy air control agency is the Navy TACC. During amphibious operations and before control is passed ashore, Navy TACC controls all air operations within the AOA. The Navy TACC is responsible for planning and conducting air operations, including CAS. Typically, the Navy TACC is onboard the amphibious task force flagship. If the JFACC's command operations center is afloat, the Navy TACC may support operations for the JAOC. The Navy TACC has two sections that control and integrate CAS:

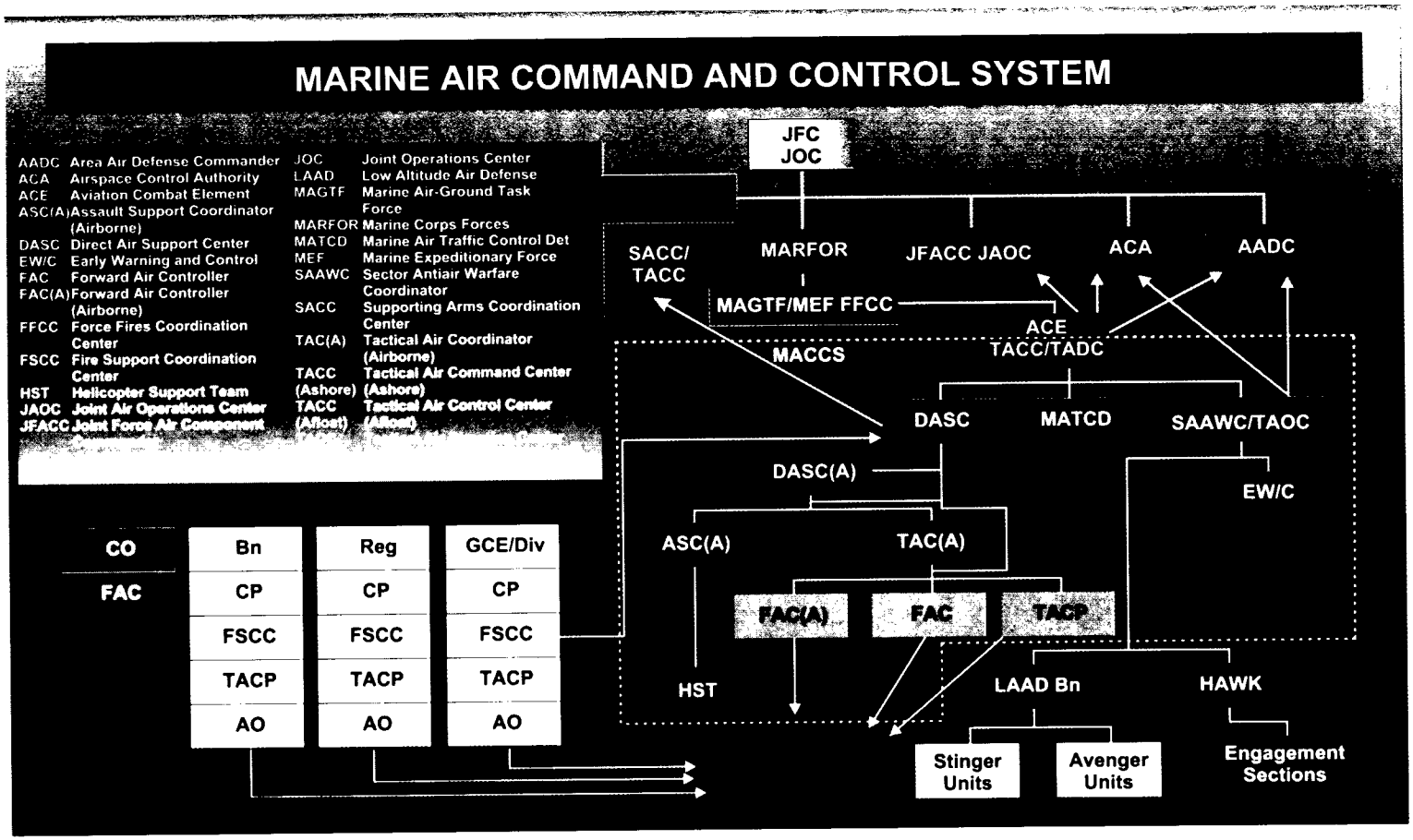

Figure II-3. Marine Air Command and Control System

•• **Air Traffic Control Section (ATCS).** The ATCS provides initial safe passage, radar control, and surveillance for CAS aircraft in the AOA. The ATCS can also provide early detection, identification, and warning of enemy aircraft.

•• **Air Support Control Section (ASCS).** The ASCS is the section of the Navy TACC designated to coordinate, control, and integrate all CAS operations with the SACC.

- **Fire Support Coordination Center.** The FSCC is **a single location that centralizes communications facilities and personnel for the coordination of all forms of fire support**. The FSCC is organized and supervised by the FSCOORD and is collocated with, and in support of, the operations officer.

- **Tactical Air Control Party (TACP).** The TACP **establishes and maintains facilities for liaison and communications between supported units and appropriate control agencies**. An air officer leads the TACP, normally with two teams assigned per maneuver battalion. Their mission is to inform and advise the supported ground unit commander on the employment of supporting aircraft and to request and coordinate air support missions. In addition, the TACP provides final attack control for CAS missions.

- **Direct Air Support Center (DASC).** The DASC is the **central coordination point for all aircraft support to GCE-user agencies at all echelons**. The DASC assigns direct air support aircraft to terminal control agencies, provides aircraft ingress and egress route instructions, and disseminates advisory information. Depending on whether control is either afloat or ashore, either the Navy TACC and/or tactical air direction center (TADC) (afloat) or Navy TACC and/or TADC (ashore) supervises the DASC's operation. The DASC is normally the first major air control agency to land in an amphibious operation. The DASC becomes operational when control of the operation is passed ashore and collocates (physically or electronically) with the senior FSCC.

- **Tactical Air Operations Center (TAOC).** The Marine Corps TAOC is subordinate to the Marine Corps tactical air command center. Among its duties, the TAOC provides safe passage, radar control, and surveillance for CAS aircraft en route to and from target areas.

- **Shore Fire Control Party (SFCP).** The supporting Marine Corps artillery battalions provide SFCPs to supported units. The SFCP consists of a liaison team and a spot team. The liaison team is headed by a Navy officer and is located in the supported battalion's FSCC. The spot team is led by a Marine Corps officer and is normally employed with the maneuver companies.

c. **The Air Force Theater Air Control System (TACS).** The Air Force component commander exercises operational control over assigned forces through the TACS. **The focal point for tasking and exercising operational control is the AOC, the senior element of the TACS.** Subordinate TACS elements perform the tasks of planning, coordinating, monitoring, controlling, reporting, surveillance, and executing air operations. These elements are Airborne Warning and Control System (AWACS), JSTARS (see paragraph 2b of this chapter), control and reporting center, message processing center, control and reporting element, airborne battlefield command and control, air support operations center (ASOC), TACP, and the tanker and/or airlift control element. The

AOC coordinates CAS and other joint air operations that support land, amphibious, and maritime forces through ASOCs, forward air controllers, TACPs, and air liaison officers. The following paragraphs describe key elements that relate to joint fire support. See Figure II-4 for a depiction of the TACS.

- **Air Support Operations Center.** The ASOC is **the key Air Force TACS agency involved in coordinating CAS for ground forces**. It performs coordination, direction, and control of the air effort to support land forces' maneuver objectives, usually at Army corps level and below. The ASOC is an operational component of the TACS, subordinate to the AOC. The ASOC usually collocates with the tactical or main FSE and A2C2 element in the corps tactical operations center (TOC). The ASOC processes requests for immediate CAS, which are submitted by ground maneuver forces. See Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)," and Joint Pub 3-56.1, "Command and Control for Joint Air Operations," for further information on Air Force C2 elements.

- **Airborne Warning and Control System.** The AWACS, which provides radar control and surveillance of air traffic, **can function as an alternate command reporting and control center** (senior radar element of the Air Force's TACS) **and as a limited AOC**. The AWACS can establish communication linkages with the ground AOC and can also communicate warnings and surveillance reports to other designated liaison agencies, such as an ASOC.

- **Airborne Battlefield Command and Control Center (ABCCC).** The ABCCC can fully integrate into an existing air C2 system. The ABCCC also has the requisite battlestaff and equipment to allow it to **function as an airborne ASOC over a battlefield without established air C2 systems**. This assumes that appropriate Army or Marine Corps personnel are augmenting the battlestaff to process and coordinate air requests from ground forces. It also has the capabilities to function as a reduced-capability AOC for contingency operations and early stages of a conflict. These capabilities are execution-oriented and the system has no planning or air tasking order (ATO) production capabilities.

- **Air Force Tactical Air Control Party.** The Air Force TACP is **a control element usually stationed with and supporting an Army combat unit**. Located at corps, division, brigade, and battalion levels, TACPs are tailored to the unit they support. The TACP provides the interface between the unit it supports and the TACS system. The TACP advises the ground commander on the capabilities and limitations of tactical aircraft and weapons and assists in planning for tactical air support. The TACP provides final attack control for CAS missions. TACPs are under the operational control of the ASOC or senior TACP element deployed.

d. **Special Operations Joint Fire Support C2 and Liaison Elements.** SOF coordinate fire support through both external and SOF channels. Within SOF channels, various elements are established to assist commanders in the execution of their fire support responsibilities. SOF elements that provide C2 and/or liaison capability include:

- **The Joint Force Special Operations Component Commander (JFSOCC).** The JFSOCC (or joint special operations task force [JSOTF] commander, if established) is the commander within a

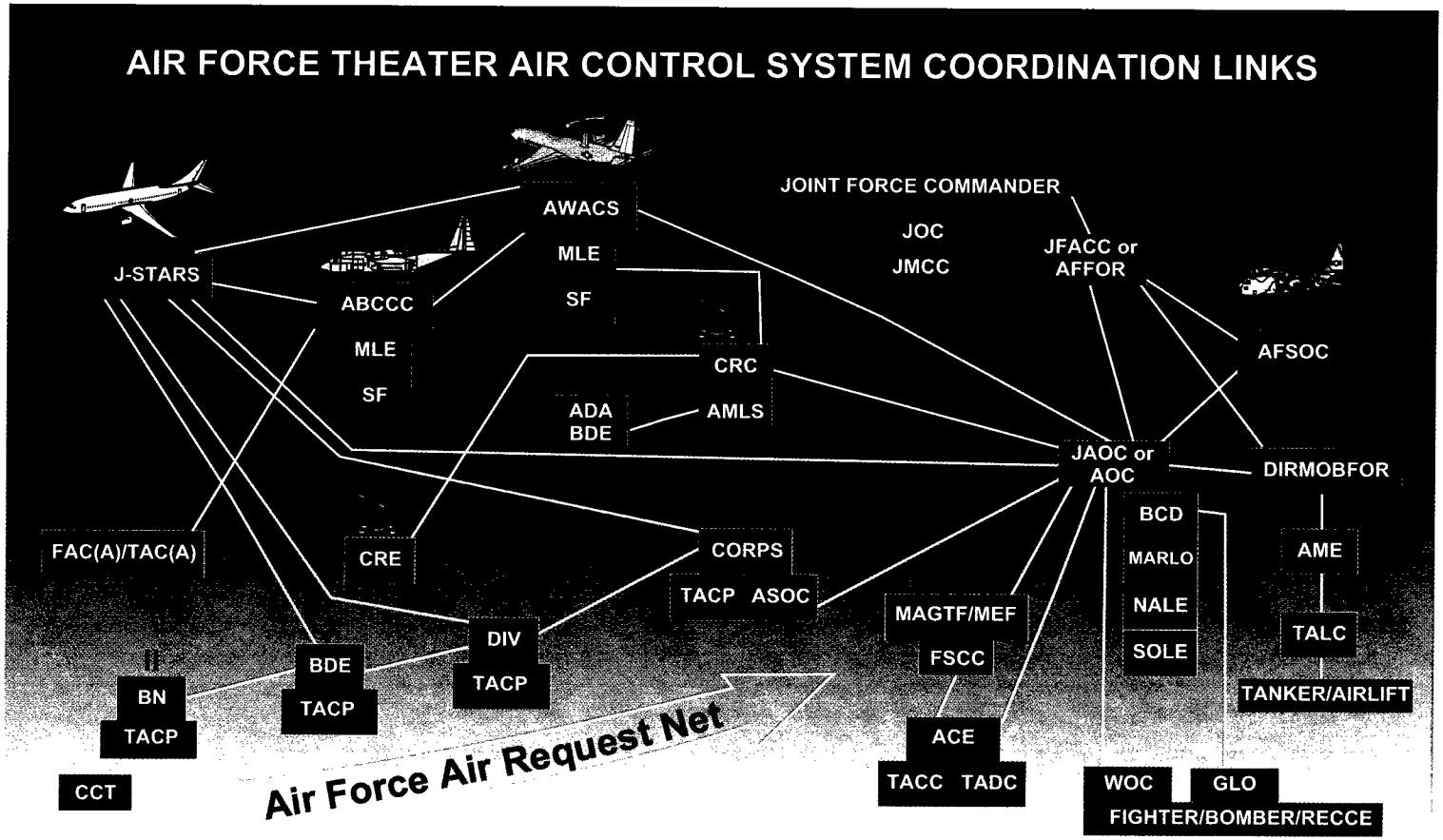

Figure II-4. Air Force Theater Air Control System Coordination Links

AIR FORCE THEATER AIR CONTROL SYSTEM COORDINATION LINKS (ACRONYM LIST)	
ABCCC	airborne battlefield command and control center
ACE	aviation combat element
ADA	air defense artillery
AFFOR	Air Force forces
AFSOC	Air Force special opertions component
AME	air mobility element
AMLS	airspace management liaison section
AOC	air operations center (USAF)
ASOC	air support operations center
AWACS	airborne warning and control system
BCD	battlefield coordination detachment
BDE	brigade
BN	battalion
CCT	combat control team
CRC	control and reporting center
CRE	control and reporting element
DIRMOBFOR	Director of Mobility Forces
DIV	division
FAC(A)	forward air controller (airborne)
FSCC	Fire Support Coordination Center
GLO	Ground Liaison Officer
JAOC	joint air operations center
JFACC	joint force air component commander
JMCC	Joint Movement Control Center
JOC	Joint Operations Center
JSTARS	joint surveillance, target attack radar system
MAGTF	Marine air-ground task force
MARLO	Marine liaison officer
MEF	Marine expeditionary force
MLE	Marine liaison element
NALE	naval and amphibious liaison element
RECCE	reconnaissance
SF	special forces
SOLE	special operations liaison element
TAC(A)	tactical air coordinator (airborne)
TACC	tactical air command center (USMC); tactical air control center (USN); tanker airlift control center (USAF)
TACP	tactical air control party
TALCE	tanker airlift control element
TADC	Tactical Air Direction Center
WOC	Wing Operations Center

Figure II-4. Air Force Theater Control System Coordination Links (Acronym List) (cont'd)

unified command, subordinate unified command, or joint task force (JTF) responsible to the establishing commander for making recommendations on the proper employment of SOF, planning and coordinating special

operations (SO), or accomplishing such operational missions as may be assigned. The JFSOCC will normally be the commander with the preponderance of SOF and the requisite C2 capabilities. When the geographic combatant commander designates a JFC, the theater special operations command may be designated as the JFSOCC. The JFSOCC exercises overall responsibility for coordination of all fire support in support of SO and, when tasked, fire support using SOF assets in support of other elements of the joint force. The JFSOCC (or JSOTF commander) exercises C2 of assigned SOF through a number of organizations. They include:

•• **Joint Special Operations Air Component Commander (JSOACC).** The JSOACC is the commander within the joint force special operations component responsible for planning and executing joint special air operations and for coordinating and deconflicting such operations with conventional, non-SO air activities. The JSOACC normally will be the commander with the preponderance of assets and/or greatest ability to plan, coordinate, allocate, task, control, and support the assigned joint special operations aviation assets. The JSOACC may be subordinate to the JFSOCC (or JSOTF commander) or to any non-SO component or directly subordinate to the JFC.

•• **Naval Special Warfare Task Group (NSWTG) and Naval Special Warfare Task Unit (NSWTU).** Naval SOF assigned to the JFSOCC are normally under the C2 of an NSWTG or NSWTU. The NSWTG is a naval special warfare organization that plans, conducts, and supports SO in support of fleet commanders and JFSOCCs (or JSOTF commanders). The NSWTU is a subordinate unit of a NSWTG.

•• **Special Operations Command and Control Element (SOCCE).** The SOCCE is the focal point for the synchronization of SOF activities with land and maritime operations. The SOCCE is normally employed when SOF conduct operations in conjunction with a conventional force. It collocates with the command element of the supported commander and performs C2 or liaison functions directed by the JFSOCC (or JSOTF commander). The focus of the coordination is on the synchronization of effects and deconfliction of fires.

- **SOF Fire Support Coordination.** Liaison between SOF and other elements of the joint force is critical to both effective support and the prevention of fratricide. SOF liaison elements provide SOF expertise to coordinate, synchronize, and deconflict SO both in support of conventional forces and when SO are conducted unilaterally. SOF C2 organizations such as a NSWTG and/or NSWTU or SOCCE may provide (or act as) liaison elements for coordination of fire support with their respective Service components. Additionally, the following elements are capable of providing fire support coordination for SOF:

•• **Special Operations Liaison Element (SOLE).** The SOLE works directly for the JFSOCC and places liaison officers where required with the JFACC and/or JFC staff or appropriate Service component air C2 facility and JAOC. The SOLE coordinates during development of the ATO to reconcile duplicate targeting, resolve airspace deconfliction, and prevent fratricide.

•• **Special Tactics Team (STT).** STTs are composed primarily of Air Force combat control and pararescue personnel. The team supports joint operations by: selecting, surveying, and establishing assault zones; providing

medical care and evacuation; and coordinating, planning, and conducting air and ground fire support. Upon entry in the AOs, special tactics forces should be placed under operational control (OPCON) of the JFSOCC. OPCON may be exercised directly by the JFSOCC (or JSOTF commander) or through the JSOACC.

•• **Special Operations Coordination Element (SOCOORD).** The SOCOORD serves as the primary advisor to an Army corps or MEF commander with regard to SOF integration, capabilities, and limitations. The SOCOORD is a functional staff element of the corps (or MEF) operations officer (G-3) and serves as the J-3 SO advisor, with augmentation, if the corps (or MEF) is established as a JTF.

5. Attack Resources

Joint fire support typically involves **two interrelated operations: air-to-surface and surface-to-surface joint fire support**. Joint fire support can also be nonlethal and/or disruptive (e.g., EW). But regardless of the attack system used, **joint fire support requires coordination and integration of airspace as well as coordination of air and surface-to-surface attack resources.** Appendix A, "Control and Coordination Measures," includes a detailed discussion of control measures and their coordination requirements.

a. **Air-to-Surface Attack.** Air-to-surface attack is **performed by Air Force, Navy, Marine Corps, and Army aircraft**. For cross-component support, Army attack helicopters can perform a CAS function, usually by being tasked as units. Generally, attack helicopters are not included in air apportionment decisions. Army aviation units conducting tactical operations are given maneuver objectives rather than individual targets. Doctrinal principles and joint tactics, techniques, and procedures for planning and executing air-to-surface delivery are found in Joint Pub 3-03, "Doctrine for Joint Interdiction Operations," and Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)." The integration of air-to-surface joint fire support with the land battle is important because it greatly increases the types of fire support and level of flexibility available to the ground force commander for the following:

- To perform missions that cannot be done by available land forces (special munitions, selected targets, shortage of land forces, and other land forces).
- To provide attack systems and specific munitions with unique delivery characteristics which may provide the optimum choice for attacking a designated target and achieving the effects required.
- To expand the land battle and thereby complicate an adversary's operations and increase the tempo and decisiveness of the joint force's land operations.

b. **Surface-to-Surface Attack.** Surface-to-surface joint fire support typically includes **organic Army and Marine Corps artillery, rocket, missile, and NSFS systems**. NSFS includes the enhanced capabilities of Navy fire support ships, to include the addition of missiles.

c. **Nonlethal Fires.** Nonlethal fires minimize damage and injury to personnel. Nonlethal fires include those fires from EW, nonlethal weapons, some PSYOP (e.g., leaflet drops), and some information operations such as disrupting the enemy's information networks. Nonlethal weapons are weapons designed and employed to incapacitate personnel or material, while minimizing

fatalities, permanent injury to personnel, and undesired damage to property and the environment. Nonlethal weapons include non-penetrating blunt impact munitions, acoustic systems, entangling devices, and sticky and slicky foams.

d. **Electronic Warfare.** EW is defined as any military action using electromagnetic energy and directed energy to control the electromagnetic spectrum or to attack the enemy. EW uses the electromagnetic spectrum for actions to deceive the enemy, destroy electronic equipment, locate its units and facilities, intercept its communications, and disrupt its C2 and TA systems at critical moments. **Elements of EW that are not directly connected with the destruction of equipment and personnel are considered nonlethal fires.** Refer to Joint Pub 3-51, "Electronic Warfare in Joint Military Operations," for a further discussion on EW doctrine and procedures. The offensive use of electromagnetic or directed energy to attack enemy information operations, C2W assets, and combat capabilities has great potential. It combines nondestructive actions to degrade or neutralize, such as electromagnetic interference, electromagnetic intrusion, electromagnetic jamming, electromagnetic deception, and nondestructive directed energy, with the destructive capabilities of antiradiation missiles and directed energy weapon systems. The limited number of electronic attack assets requires economy of force and synchronization within the overall concept of the operation to promote unity of effort throughout the force.

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CHAPTER III
PLANNING AND COORDINATION

"Commanders and leaders must remain flexible and therefore, must keep plans simple. Be nimble of mind."

General Shalikashvili, CJCS, quoted at Ft. Polk

1. Introduction

This chapter focuses on the planning and coordination of joint fire support operations. Fire support planning and coordination ensures that all available fire support is synchronized in accordance with the commander's plan. **The key to effective integration of joint fire support is the thorough and continuous inclusion of fire support in the planning process and a vigorous execution of the plan with aggressive coordination efforts.** Commanders should not rely on their fire support coordinators to plan and coordinate fire support solely from an OPORD. A continuous dialogue between the commander and fire support planners and/or coordinators must occur.

a. Fire support planners and/or coordinators actively participate with other members of the staff to develop estimates, give the commander recommendations, develop the fire support portion of the concept of operations, and supervise the execution of the commander's decision. The effectiveness of their planning and coordination is predicated on the commander providing clear and precise guidance.

b. **All components can plan for and coordinate fire support.** Integral to the commander's concept of operations is the concept of joint fire support. Just as the CINC's campaign strategy should take into account the integration and synchronization of tactical, operational, and strategic operations, the concept of operation for subordinate commanders should integrate and synchronize joint fire support at the tactical as well as the operational level. Joint fire support planning and coordination must be continuous and its execution decentralized.

2. Joint Fire Support Planning

The purpose of joint fire support planning is to optimize its employment by integrating and synchronizing joint fire support with the supported commander's maneuver plan. **During the planning phase, commanders develop the scheme of maneuver and concept for fires. Commanders determine how to shape the battlefield with fires to assist maneuver and how to use maneuver to exploit the use of fires.** Objectives are restated in terms of forces, functions, and facilities that require the allocation of joint fire support assets. Decisive operations, freedom of action, massing of effects, and depth and simultaneity are typical considerations. Fire support planners and/or coordinators are responsible for advising commanders on the best use of available joint fire support resources, developing fire support plans, issuing necessary orders in the name of appropriate commanders, and implementing approved fire support plans for the component or joint force. Joint fire support needs must be considered during the JFC's and component commanders' planning and decision making processes.

a. **Planning. Deliberate planning of joint fire support is a complex task. Joint fire support planning becomes even more complex during crisis action planning** due to the limited time to plan and coordinate operations that may require rapid execution.

During crisis situations, fire support planning must be expeditiously organized to prioritize limited assets and synchronize fires for complicated contingency operations.

b. **Basic Fire Support Tasks.** Effectiveness of the fire support effort is measured by achieving desired effects on the enemy, setting conditions for decisive operations, and supporting joint force operations. **Effective fire support depends on planning for the successful performance of the following four basic fire support tasks:**

- **Support Forces in Contact.** The commander must provide responsive fire support that protects and ensures freedom of maneuver to forces in contact with the enemy throughout the operational area.

- **Support the Concept of Operation.** Commanders set the conditions for decisive operations by successfully attacking HPTs, the loss of which prevents the enemy from interfering with friendly operations or developing their own operations.

- **Synchronize Fire Support.** Fire support is synchronized through fire support coordination, beginning with the commander's estimate and concept of operations. Fire support must be planned for continuously and concurrently with the development of the scheme of maneuver. Further, operations providing fire support must be synchronized with other joint force operations (e.g., air operations, intelligence operations, SO) in order to optimize the application of limited resources, achieve synergy, and avoid fratricide.

- **Sustain Fire Support Operations.** Fire support planners must formulate fire support plans to reflect logistic limitations and to exploit logistic capabilities. Ammunition, fuel, food, water, maintenance, transportation, and medical support are all critical to sustaining fire support operations.

3. Planning Process for Fire Support Targeting

Fire support planning requires time. The systems discussed in Chapter II, "Joint Fire Support System," (such as the TACS and/or Army air-ground system and MACCS) are designed to provide responsive fires when needed. Fire support planning requires detailed planning as well as developing and disseminating target information.

a. **Processes.** Targeting is the process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities. Targeting is a cyclical process (Figure III-1) which begins with guidance and priorities issued by the JFC and continues with identification of requirements by components; the prioritization of these requirements; the acquisition of targets or target sets; the attack of targets by components; component and JFC assessment of the attacks; and continuing guidance from the JFC on future attacks. The targeting cycle begins with objectives and guidance, proceeds through execution, and ends with combat assessment. Targeting matches objectives and guidance with inputs from intelligence and operations personnel to select specific targets and identify the forces necessary to achieve the desired objectives against those targets. More information on targeting can be found in Joint Pub 2-01.1, "Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting," and Joint Pub 3-60, "Joint Doctrine for Targeting."

The Army and Marine Corps use two interrelated processes to enhance joint fire support planning and interface with the joint targeting process. The first is the use of the decide, detect, deliver, and assess (D3A)

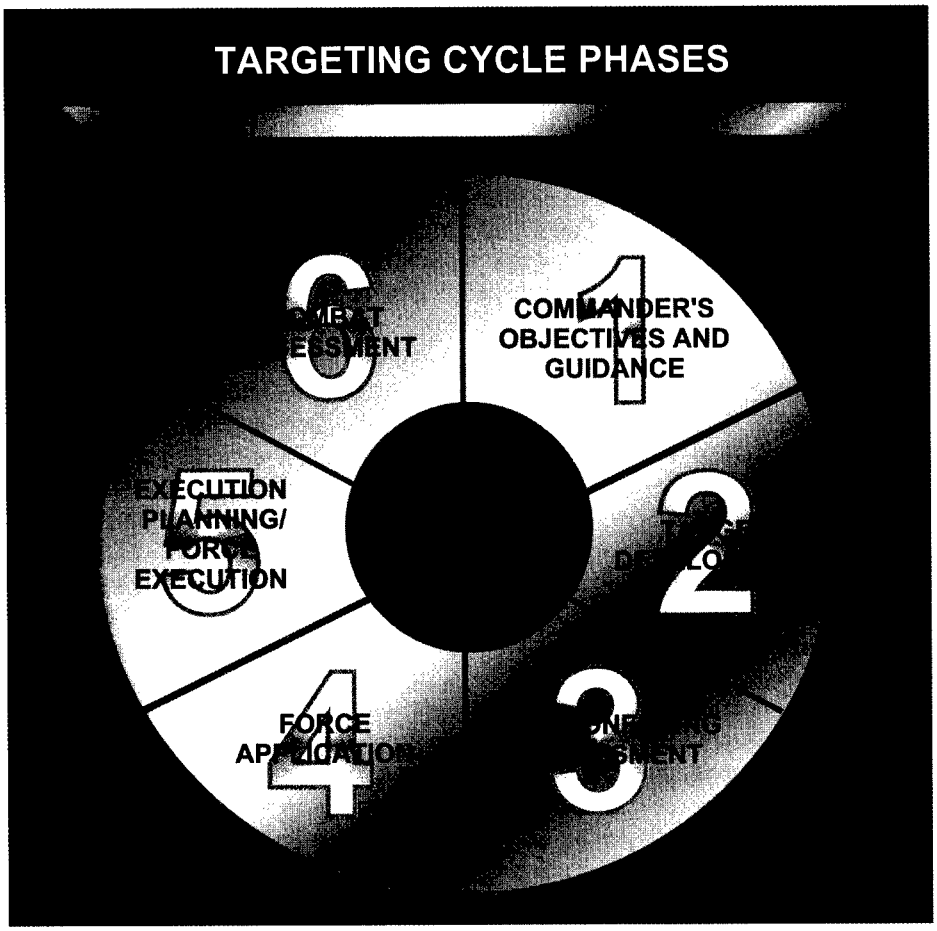


Figure III-1. Targeting Cycle Phases

methodology (See Figure III-2). D3A is commonly used by the Army and Marine Corps and incorporates the same fundamental functions of the joint targeting process. The second process is the use of wargaming, which is an exercise performed by commanders and staffs to determine the best COA for a given operation.

- **Decide, Detect, Deliver, and Assess.** The D3A methodology facilitates synchronizing maneuver, intelligence, and fire support.

  •• **In the decide phase, target categories are identified for engagement.** Fire support, intelligence, and operations personnel decide what targets to look for, where the targets can be found on the battlefield, who can locate those targets, and how the targets should be attacked based on the commander's intent and the desired end state. Together, they determine the available assets to be allocated and additional assets required. They also identify channels needed to provide acquisition information on a real time basis.

  •• **The detect phase is designed to acquire the targets selected in the decide phase.** In this phase, TA assets and agencies execute the intelligence collection plan and focus on specific areas of interest. Targets must be

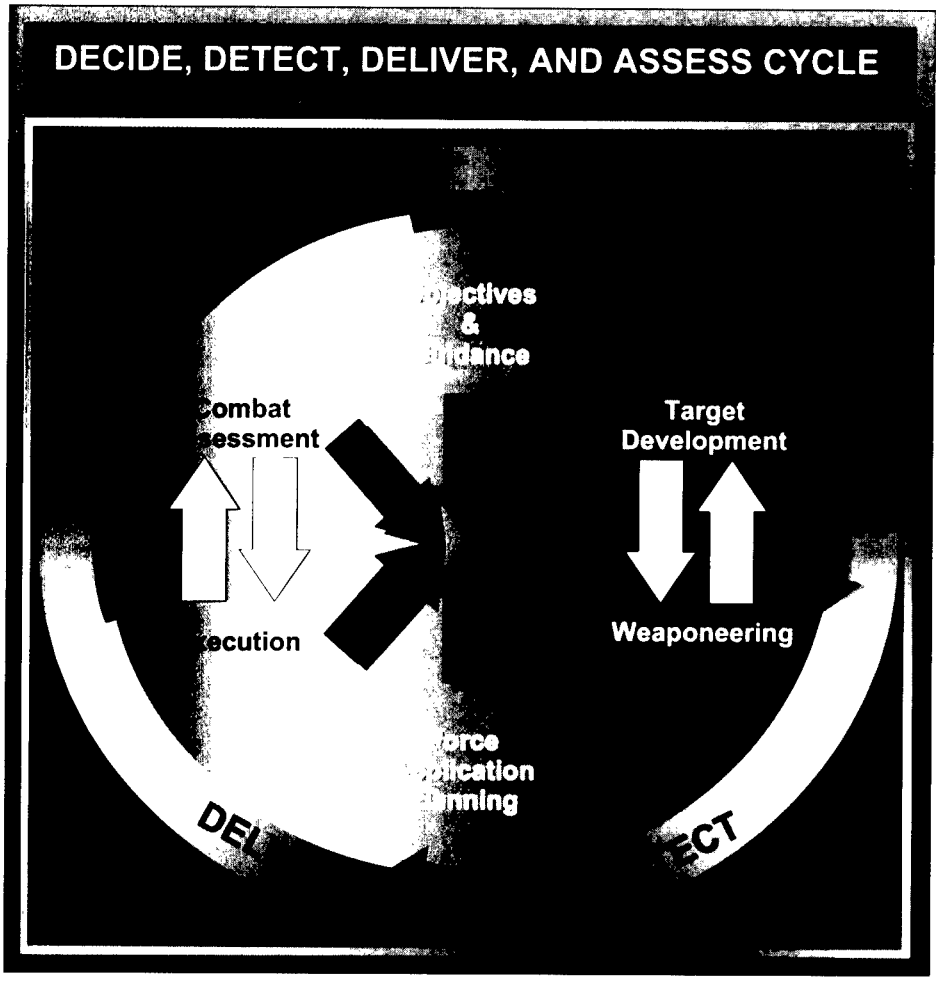


Figure III-2. Decide, Detect, Deliver, and Assess Cycle

monitored after detection (especially mobile targets). Tracking is an essential element of the detect function. Tracking priorities are based on the commander's concept of the operation and targeting priorities. Detection and tracking are executed through use of a collection plan. However, not all targets can be tracked constantly due to limited resources.

•• **The deliver phase involves selecting the right attack system (both lethal and nonlethal)** and attacking specific threat functions and targets in accordance with the attack guidance.

•• **Assess is the estimate of damage resulting from the use of military force**, either lethal or nonlethal, against a target. Assessment requires extensive coordination between operational and intelligence elements to be effective, timely, and accurate. A key element of the assess function is the decision as to whether the target requires reattack in order to achieve the desired level of effects specified by the commander.

- **Wargaming. Wargaming is a mental exercise performed by a commander and staff to determine the best COA**

for a given operation. Each COA must be wargamed to consider the implications of both friendly and enemy options during an operation. Fire support planners and/or coordinators are key players in this wargaming process. They advise the commanders on the fire support assets available and recommend the most effective use of these assets. As the wargaming process progresses, fire support planners and/or coordinators continuously evaluate the integration of fire support into the commander's emerging concept of operation, to include branches and sequels. As a result of this interaction, the commander's options are influenced by the availability and allocation of fire support assets. The finished product of wargaming is a COA that integrates fire support with maneuver and synchronizes operations. Another typical product of wargaming is a list of HPTs.

b. **Component Planning Steps.** This process consists of **a series of interrelated steps** that increase the degree of coordination required.

- **Receipt of Mission.** Upon receipt of a mission, fire support personnel assist the commander in mission analysis. Fire support personnel must understand the commander's guidance on the following:
  - •• Specific COAs.
  - •• HVTs and/or HPTs.
  - •• Use of special munitions such as nuclear and mine-laying weapons.
  - •• Acceptable risks.
  - •• C2.
  - •• Commitment of the reserve force.
  - •• Critical events to be considered.
  - •• Commander's assumptions.
  - •• ROE.
- **Preparing the Joint Fire Support Estimate. Typically land force staffs employ the use of a joint fire support estimate.** This estimate influences how available joint fire support resources are employed to support the possible COAs and helps fire support planners and/or coordinators to integrate and synchronize the employment of fire support resources. **The estimate is a realistic appraisal of the effort required to support the operation.** It serves as a basis for identifying joint fire support priority requirements to include fire support plans that support the commander's intent. Any variable that could affect the mission is a factor. Examples of factors that may be considered in the joint fire support estimate include the following:
  - •• The task organization of subordinate forces and their missions.
  - •• The availability of joint fire support resources, including field artillery, CAS (by both fixed- and rotary-wing aircraft), NSFS, and SOF. Also included are EW, intelligence, and surveillance assets.
  - •• The probable enemy fires plan.
  - •• Enemy fires capability.
  - •• The identification of HVTs and HPTs.
  - •• Consumption factors (type and quantity), positioning requirements, and priority of logistic support.
  - •• Critical decision points.

- **Issuing the Commander's Estimate. Based on information provided by the commander's staff (staff estimates), the commander issues an estimate.** Fire support planners and/or coordinators information requirements include guidance regarding prioritization of targets, desired effects, and targets that require some sort of formal assessment after attack.

- **Initiating Planning Actions.** Once the commander decides on a COA, the following actions occur:

  •• The staff and fire support planners and/or coordinators refine named areas of interest, decision points, and HPTs.

  •• Fire support planners and/or coordinators and intelligence personnel integrate and refine the collection plan and the TA plan. All collection assets are tasked and integrated to ensure there are no gaps in the coverage of the AO.

  •• Fire support planners and/or coordinators develop fire support tasks, responsibilities, and requirements.

  •• Fire support planners and/or coordinators staff and develop the fires employment concept and fire support plan.

c. **Target Analysis. The commander establishes targeting guidance that must be incorporated into the fire support planning process.** The commander must establish the priorities or describe the importance of a target set and/or category in relation to a given situation or phase of operation. During an air assault operation, for example, attacking known enemy air defense systems may be more important than attacking enemy artillery sites. Targeting tactics, techniques, and procedures (TTP) are discussed in Joint Pub 3-60, "Joint Doctrine for Targeting." The overall effectiveness and efficiency of the fire support planning process increases as leaders consider the following:

- The type and amount of assets or ammunition available.

- The effectiveness (lethality) of munitions.

- The size, type, and posture of the target.

The fire support coordinator determines the echelon of fire support required for the task.

- Fire support asset characteristics (range, accuracy, rate of fire, and response time).
- The most effective weapon system and munitions.
- The target's location in relation to the civilian population and civilian objects. Those who plan the employment of weapons are required to take all necessary precautions to minimize incidental loss of civilian life, injury to civilians, and damage to civilian objects.
- Target selection standards and decision criteria for target reattack.
- Damage criteria.

4. Joint Fire Support Coordination

Joint fire support coordination is a **continuous process of planning and executing fires**. Joint fire support coordination involves operational, tactical, and technical considerations and the exercise of fire support command, control, and communications. Fire support coordination includes efforts to deconflict attacks, avoid fratricide, reduce duplication of effort, and assist in shaping the battlespace. **Coordination procedures must be flexible and responsive to the ever-changing dynamics of warfighting.** Simplified arrangements for approval or concurrence should be established. Coordination is reflected in the concept of operations and in the sequencing and timing of actions to achieve objectives. Coordination is enhanced when fire support personnel clearly understand the commander's intent. A very important part of the coordination process is the identification of potential fratricide situations and the necessary coordination measures to positively manage and control the attack of targets.

a. **Synchronization**. Fire support coordination is a flexible process that must be kept as simple as possible to produce the desired results. The JFC and component commanders **synchronize joint fire support operations to place the right attack means on the correct target at the precise time**. To achieve synchronization, commanders and staffs must have a thorough knowledge of each Service's doctrine, major systems, significant capabilities and limitations, and often their TTPs. Figure III-3 illustrates a supporting theater air ground system and its myriad of coordination links which often overlays similar ground-to-ground systems.

b. **Principles.** Agencies involved in coordinating joint fire support employ several principles. These principles are extensions of the four basic fire support tasks discussed earlier in this chapter.

- **Plan Early and Continuously. To effectively integrate fire support with the scheme of maneuver, planning must begin when the commander states the mission and provides the command guidance.** Whenever commander's guidance is needed during planning, fire support planners and/or coordinators should solicit that guidance from the commander. Planning is continuous and keeps pace with the dynamics of the battle.
- **Ensure Continuous Flow of Targeting Information. Fire support planners and/or coordinators should ensure that acquisition requirements for fire support are identified and focused on detecting priority targets.** Staffs ensure that target information from all sources is evaluated and routed to the appropriate attack means. This includes information from all echelons and from adjacent and supporting elements.

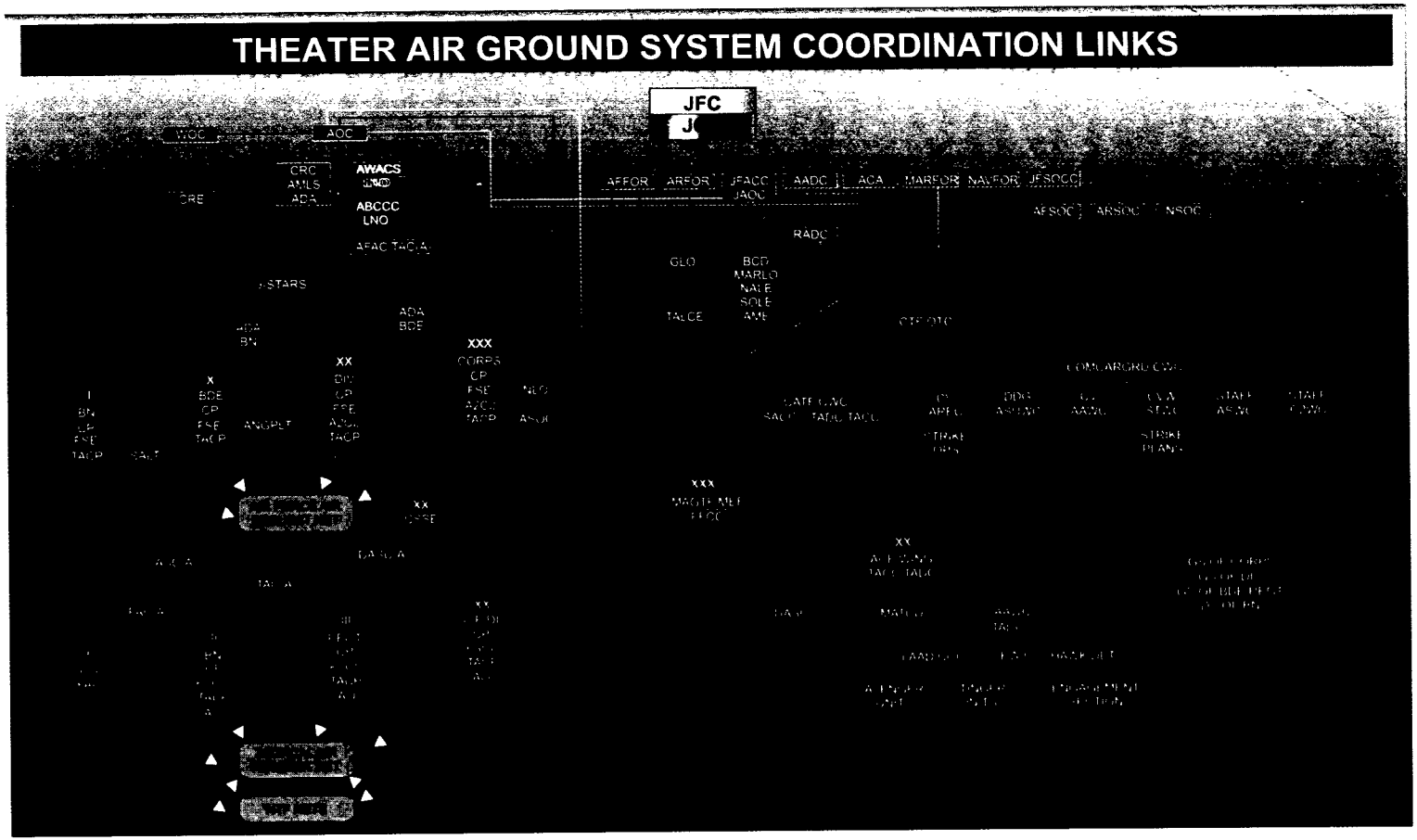


Figure III-3. Theater Air Ground System Coordination Links

THEATER AIR GROUND SYSTEM COORDINATION LINKS (ACRONYM LIST)	
A2C2	Army airspace command and control
AADC	Area Air Defense Commander
AAWC	Antiair Warfare Commander
ABCCC	airborne battlefield command and control center
ACA	airspace control authority
ACE	aviation combat element
ADA	air defense artillery
AFAC	airborne forward air controller
AFFOR	Air Force forces
AFSOC	Air Force special operations component
AME	air mobility element
AMLS	airspace management liaison section
AO	air officer
AOC	air operations center
AREC	air resource element coordinator
ARFOR	Army forces
ARSOC	Army special operations component
ASC(A)	air systems command (airborne)
ASOC	air support operations center
ASUWC	antisurface warfare commander
ASWC	antisubmarine warfare commander
AWACS	airborne warning and control system
BCD	battlefield coordination detachment
BDE	brigade
BN	battalion
C2WC	command and control warfare commander
CATF	commander amphibious task force
COC	combat operations center
COMCARGRU	commander carrier group
CP	command post
CRC	control and reporting center
CRE	control and reporting element
CSSE	combat service support element
CTF	combined task force
CV	carrier
CVW	carrier wing
CWC	composite warfare commander
DASC	direct air support center
DASC(A)	direct air support center (airborne)
DDG	guided missile destroyer
DIRMOBFOR	director of mobility forces
DIV	division
EW/C	early warning/control

Figure III-3. Theater Air Ground System Coordination Links (Acronym List) (cont'd)

THEATER AIR GROUND SYSTEM COORDINATION LINKS (ACRONYM LIST) (cont'd)	
FAC(A)	forward air controller (airborne)
FFCC	force fires coordination center
FSCC	fire support coordination center
FSE	fire support element
GCE	ground combat element
GLO	ground liaison officer
HAWK DET	HAWK missile detachment
J-STARS	joint surveillance target attack radar system
JAOC	joint air operations center
JFACC	joint force air component commander
JFC	joint force commander
JFSOCC	joint force special operations component commander
LAAD	low altitude air defense
MAGTF	Marine air ground task force
MARFOR	Marine Corps forces
MARLO	Marine liaison officer
MATCD	Marine air traffic control detachment
MEF	Marine expeditionary force
NALE	Navy liaison element
NAVFOR	Navy forces
NLO	Navy liaison officer
NSOC	Navy special operations component
NTF	Naval task force
OTC	officer in tactical command
RADC	regional air defense commander
REGT	regiment
SAAWC	sector antiair warfare coordinator
SACC	supporting arms coordination center
SALT	supporting arms liaison team
SOLE	special operations liaison element
STWC	strike warfare commander
TAC(A)	tactical air controller (airborne)
TACC	tactical air command center (USMC); tactical air control center (USN); tanker airlift control center (USAF)
TACP	tactical air control party
TADC	tactical air direction center
TALCE	tanker airlift control element
TAOC	tactical air operations center
WOC	wing operations center

Figure III-3. Theater Air Ground System Coordination Links (Acronym List) (cont'd)

- **Consider the Use of all Lethal and/or Nonlethal Attack Means.** Fire support planners and/or coordinators **consider all attack means available at their level and higher levels**. They also consider the command guidance for the use of these attack means in the present battle and in future battles.

- **Use the Lowest Echelon Capable of Furnishing Effective Support.** In order to keep fire support responsive, the

lowest level having effective means available should deliver it. Fire support planners and/or coordinators must determine what is needed. If assets are inadequate, they must request additional fire support from the appropriate echelon or component. Coordination among Service and functional components should occur at the lowest possible echelon. When coordination cannot be accomplished or additional guidance is required, the next higher echelon should be consulted.

- **Furnish the Type of Fire Support Requested.** The requester is usually in the best position to determine fire support requirements. However, fire support planners and/or coordinators are in a position to weigh the request against the commander's guidance on priority targets and the current and future needs for fire support.

- **Use the Most Effective Fire Support Means.** Requests for fire support are transmitted to the force capable of delivering the most effective fires within the required time. When developing a recommendation for the appropriate weapon system, **the fire support planners and/or coordinators should consider the nature and importance of the target, the engagement time window, the availability of attack assets, and the results desired**. In some circumstances, it may be necessary to sequence the attack by fixing the enemy with immediately available fire support assets, while coordinating a subsequent more detailed attack by more effective assets. It may be necessary to use multiple assets to achieve the desired effects on a target.

- **Avoid Unnecessary Duplication.** A key task for fire support planners and/or coordinators is to ensure that duplications of fire support are resolved.

- **Coordinate Airspace**

  •• All component commanders must have the freedom to use airspace to achieve the JFC's objectives and must have maximum flexibility to use assets (organic and joint) within that airspace. **Effective airspace management requires a responsive airspace control system, standardization, minimal restrictions, and continuous coordination among all airspace users.** Joint planning and coordination are necessary to minimize mutual interference while deploying and employing air defense and fire support assets. See Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone," and Joint Pub 3-56.1, "Command and Control for Joint Operations," for additional information.

  •• **Commanders, assisted by fire support planners and/or coordinators, must ensure that conflicts between surface-based indirect fire and air operations are minimized.** For example, an uncoordinated attack deep into the surface AO by the joint force land component could result in an unexpected repositioning of enemy air defense just prior to a planned air strike. Similarly, an uncoordinated air mission beyond the fire support coordination line (FSCL) could influence the wrong enemy force and interfere with the ground scheme of maneuver.

  •• **All Services operate systems for airspace control.** When similar Service systems are linked with the airspace control authority by communications, standardized procedures, and liaison, they become part of the integrated airspace control system. The highest probability of interference between aircraft and surface-to-surface weapons occurs at relatively low altitudes in the

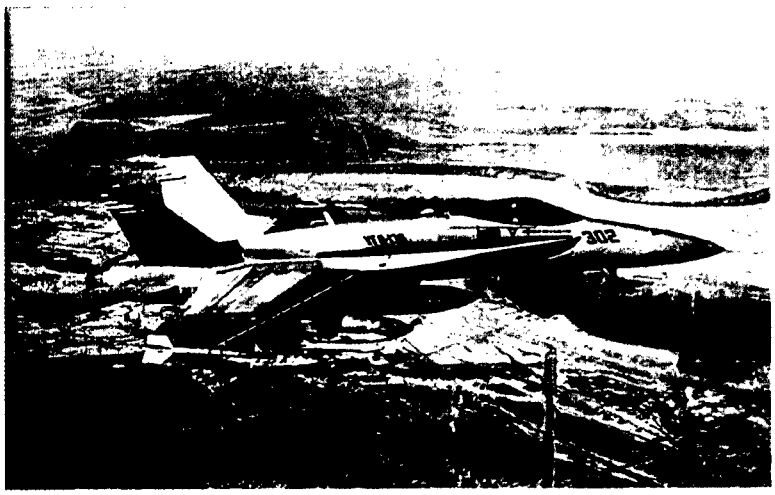
immediate vicinity of firing locations and target impact areas. FSCMs and ACMs exist within a network of component fire support teams, liaison parties, and fire coordination elements (See Figure III-3). Using FSCMs and ACMs correctly can prevent fratricide and duplication of effort while increasing the effectiveness of air-to-ground and ground-to-ground ordnance. Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone," contains a detailed discussion on airspace control.

- **Provide Adequate Support.** The maneuver element's mission and commander's guidance determine the amounts and types of fire support needed for success. **Fire support planners and/or coordinators must conserve capabilities** by ensuring that only the minimum force needed to achieve the desired effects is used. They must inform the maneuver commander when fire support requirements exceed capabilities.

- **Provide for Rapid Coordination. Commanders must establish procedures and responsibilities for the rapid coordination of fire support.** In some circumstances, coordination of fire support will be detailed and done in advance. In other instances, due to operational circumstances, coordination will be rapid and less detailed. Rigid coordination procedures may delay the delivery of fires and jeopardize the force. Fire support planners and/or coordinators must know the availability of assets, the concept of operations, the commander's intent, FSCMs in effect, ROE, and any other restrictions.

- **Protect the Force.** Given the complexity inherent in joint fire support, **prevention of fratricide must always be a high priority**. Commanders at all levels must consciously and deliberately reduce the potential for fratricide.

  •• In the execution of joint fire support, joint forces must implement measures to reduce the risk of fratricide to include disciplined execution of OPORDs, the airspace control order, vertical and horizontal coordination among forces, combat identification procedures, and detailed situation awareness.



Rapid and flexible coordination is essential for effective fire support.

•• The change of established FSCMs and/or ACMs must be coordinated as far in advance as possible. All joint force coordinating agencies must inform their forces of the effective times and locations of new FSCMs and/or ACMs. Following direction to execute the change, the component operations cells should confirm the changes to ensure that affected forces are aware of new FSCM and/or ACM locations and that associated positive control measures are being followed.

•• Additional measures that may be considered to protect the force include: (1) Guidance and restrictions governing the authority, use, reporting, marking, and clearing of mines and munitions with high sub-munitions dud rates; (2) Restrictions on the use of incendiary munitions where resulting fires might endanger maneuvering forces; (3) Policy regarding cessation of NSFS to ensure safety of amphibious shipping and joint forces operating in the AOA; (4) Policy on use of selected munitions and fuses (e.g., variable time fuse) in the JOA and/or AO; (5) Development and disciplined use of common operational graphics and associated maneuver and ACMs and FSCMs throughout the joint force; (6) Special safety precautions to be observed during ship-to-shore movement and with operations involving helicopterborne assaults; (7) Weapons employment restrictions; (8) Target identification and engagement criteria; and (9) Prohibited targets.

- **Provide for Flexibility.** Fire support planners and/or coordinators must anticipate and provide for future contingencies. On-order missions and the careful positioning of assets give the commander the flexibility to respond to changing battlefield conditions.

c. **Control and Coordination Measures. Within their operational areas, land and naval force commanders employ permissive and restrictive FSCMs** to expedite attack of targets; protect forces, populations, critical pieces of infrastructure, and sites of religious or cultural significance; deconflict fire support operations; and establish conditions for future operations. Along with other control measures, FSCMs and their associated procedures help ensure that joint fire support does not jeopardize troop safety, interfere with other attack means, or disrupt operations of adjacent subordinate units. **Maneuver commanders position and adjust control measures consistent with the location of friendly forces, the concept of the operation, anticipated enemy actions, and in consultation with superior, subordinate, supporting, and affected commanders. The primary purpose of permissive measures is to facilitate the attack of targets.** With the exception of the FSCL, permissive measures normally require no further detailed coordination for the engagement of targets with conventional means. Restrictive measures impose requirements for specific coordination before engagement of targets. Control and coordination measures are discussed in detail in Appendix A, "Control and Coordination Measures."

5. Diverse Roles

a. **Special Operations.** SO are a form of warfare characterized by a unique set of objectives, weapons, and forces. Joint Pub 1-02, "DOD Dictionary of Military and Associated Terms," defines SO as "operations conducted by specially organized, trained, and equipped military and paramilitary forces to achieve military, political, economic or psychological objectives by unconventional military means in hostile, denied, or politically sensitive areas. . . ."

- The traditional SO missions include unconventional warfare, direct action, special reconnaissance, foreign internal defense, combatting terrorism, PSYOP, civil affairs, IO, and counterproliferation of weapons of mass destruction. **Many of these SO missions provide the JFC with unconventional attack options.** SOF are not a substitute for conventional forces, but a necessary adjunct to existing conventional capabilities. Typically, air, naval, and long-range ground-based fire support systems are called to deliver additional joint fire support to SOF.

- **Direct action by SOF may also require joint fire support.** Direct action missions may be conducted with SOF providing terminal guidance for weapon delivery systems. The inherent responsibility to plan for SOF direct action application requires the JFC and staff to systematically address SOF employment.

- The requirement for communications between fire support providers and SOF must be considered. SOF may operate deep within enemy territory and communications may be limited. Fire support planning must anticipate the need for stealth and plan contingency fires that can be executed violently, rapidly, and accurately. See Joint Pub 3-05, "Doctrine for Joint Special Operations."

b. **Military Operations Other Than War. Joint fire support is planned and employed in support of MOOTW.** Such operations include combatting terrorism, counterdrug operations, sanctions enforcement, nation assistance, noncombatant evacuation operations, peace operations, and strikes and raids. Fire support during MOOTW requires special emphasis on the ROE and the need to limit collateral damage. See Joint Pub 3-07, "Joint Doctrine for Military Operations Other Than War," for further reference.

- The political nature of MOOTW makes precision employment essential if joint fire support is necessary. Close coordination with host country officials in the operational area is needed and communications with host country forces must be maintained.

- Using precision weapons can minimize collateral damage and casualties. Planning and delivery of precision weapons can help the commander preclude unwanted collateral damage and avoid consequences with political ramifications that could jeopardize the operation. This consideration may constrain the employment of lethal joint fire support systems.

- Nonlethal fires can be used to confuse, deceive, delay, disorganize, influence, or locate the opposition. The development of nonlethal weapons has drawn greater military interest in the past few years due to the restraints imposed on using lethal fires support means and greater public sensitivity to military and civilian casualties. JFCs and planners should seek fire support options that help minimize casualties and collateral damage, particularly in heavily populated areas. The employment of nonlethal fires in supporting these operations will be governed by their political impact.

c. **Multinational Operations.** Future military operations will normally be joint and often multinational. **Fire support coordination in multinational operations demands special arrangements with multinational forces and local authorities.** These include communication and language requirements, liaison personnel, and interoperability. Excellent examples of coordinated fire support arrangements are the North Atlantic Treaty Organization (NATO) standardization agreements (STANAGs). These provide participants with common

terminology and procedures. SOF teams assigned to coalition units can provide the JFC an accurate evaluation of capabilities, location, and activities of coalition forces, thus facilitating the JFC's C2. This is particularly important in coordinating fire support of coalition units. Additionally, during multinational operations, guidelines for clearance of indirect fires should be included in the ROE. See Joint Pub 3-16, "Joint Doctrine for Multinational Operations," for further information.

d. **IO. In certain situations, some applications of joint fire support may be directed against the enemy's C2 assets as a target set.**

- C2W integrates the use of operations security, military deception, PSYOP, EW, and physical destruction (mutually supported by intelligence) to deny information to, influence, degrade, or destroy adversary C2 capabilities while protecting friendly C2 capabilities against such actions. Fire support operations facilitate C2W operations by attacking enemy C2 capabilities. For example, when enemy communications are intercepted and the transmitters located, friendly forces have the potential to immediately target and attack their C2 systems and/or forces with lethal or nonlethal fires.

- Destruction of a hostile C2 function and/or system means that the function and/or system is permanently eliminated. Effectively damaged means that the function and/or system cannot perform for a specified period of time. The commander must clearly communicate the desired damage criteria in terms of the function and period of time that the function needs to be eliminated to allow the efficient use of limited resources for widest coverage of targets. Refer to Joint Pub 3-13, "Joint Doctrine for Information Operations," for further information.

6. Other Planning and Coordination Considerations

a. **Multiple Datums.** The Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3900.01, "Position Reference Procedures," established the World Geodetic System 1984 (WGS-84) as the datum of choice for US forces. This instruction provides for use of other datums when WGS-84 is not feasible.

- Datums are used in mapping and define a cohesive set of survey controls. All surveyed positions in one datum are reduced to a common grid reference with certain prescribed accuracy. **When operating in an area where more than one datum exists, users must define the datum of their grid coordinates.** Whenever possible the operations staff should specify the datum in the OPLAN and/or OPORD. Grid zone identifiers for the Military Grid Reference System change with different datums.

- "Coordinate system" is an often misused term. A coordinate system is a set of rules that specify how coordinates are to be assigned to points. In other words, it is a way of naming or labeling a particular location. The Geographic Coordinate System names a point in terms of latitude and longitude. The Universal Transverse Mercator Coordinate System names points in terms of easting and northing. Just because two points use the same convention (i.e., easting and northing), does not ensure that they are on the same datum.

b. **Laser Designation and Acquisition of Targets. Laser designator and acquisition devices can enhance current capabilities of artillery, NSFS, and aircraft in the delivery of munitions on surface targets.** Both fixed- and rotary-wing aircraft platforms as well as ground based observers can laser-designate targets for

precision-guided munitions. Employment of lasers can provide fire support personnel with precise target marking, enhanced visual target acquisition, and surprise. It can also reduce the weapon and/or sortie attack requirements. However, several factors — environment, laser system inherent limits, and target types — affect laser employment. Fire support planners and/or coordinators must understand advantages and limitations when employing lasers. Additional guidance can be found in Joint Pub 3-09.1, "Joint Laser Designation Procedures" and Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)."

COORDINATION, COMMUNICATION, AND INTEGRATION WITH THE COALITION DURING THE PERSIAN GULF WAR

The coalition coordination, communication, and integration center (C3IC) was established during the Persian Gulf War in Riyadh, in the same building complex that housed CENTCOM headquarters. It was operated by ARCENT and the Saudi Arabian Armed Forces. The initial C3IC task was to coordinate the activities of the Coalition ground forces assembling in Saudi Arabia. As Operation DESERT SHIELD matured and the Coalition grew, responsibility for the US operation of the center was transferred to the CENTCOM staff, and its mission was primarily to prepare for operations to liberate Kuwait.

The C3IC served as the link between the two major command structures that developed during Operation DESERT SHIELD — the American, British, and French (as well as air units from Italy and Canada) on one hand, and the Arab and Islamic (or Joint Forces Command) forces on the other. The 24-hour center exercised no command authority, but was the conduit for all coordination between the Western, Arab, and Islamic forces. It proved crucial to the success of Operation DESERT STORM. During Operation DESERT SHIELD, the C3IC became the clearing house for the coordination of training areas, firing ranges, logistic arrangements, frequency management, and planning activities. During Operation DESERT STORM, the center coordinated the operations of the US, UK, and French forces with those of the JFC-N, JFC-E, and JFC-A. This included coordination of boundary changes and movement of the fire support coordination line. Throughout the crisis, the C3IC also served as the focal point for the exchange of intelligence between the Saudi and US forces at the national, theater, and tactical levels. This included requests for both strategic and tactical reconnaissance to and from each command level.

SOURCE: DOD Final Report to Congress
Conduct of the Persian Gulf War, April 1992

CHAPTER IV
EXECUTION

"Battles are won by superiority of fire."

Frederick the Great, 1768

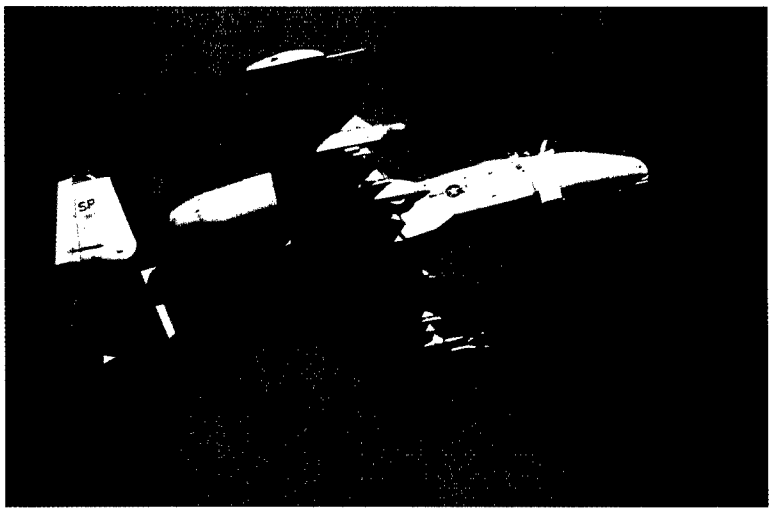
1. Introduction

Combined arms operations involving infantry, armor, aviation, and artillery must be synchronized and orchestrated by maneuver commanders to realize the full potential of each combat arm. The same need for synchronization applies to the execution of joint fire support. Typically, **much of a commander's fire support does not come from organic assets, but instead is provided from nonorganic resources**. All available fire support must be synchronized to create synergistic results — the whole system is far more effective than its parts. The synchronization of joint fire support requires great skill from commanders and fire support coordinators and/or planners.

When fire support is preplanned, the effects are more likely to be effective. However, preplanned fire support is not always possible, such as when an unexpected battlefield event generates a requirement for immediate fire support. **An immediate call for fire support can originate at any level**, but usually originates at the tactical unit level. Whether preplanned or immediate, joint fire support must be integrated into all combat operations.

2. Coordination and Interaction

Joint fire support is a complex operation requiring close coordination and interaction between components. The following example of a joint air attack team (JAAT) demonstrates the complexity of joint fire support operations. The following discussion illustrates the detailed interaction between components that takes place in such joint operations. The JAAT is a good example of the complexity and interaction required for successful joint fire support.



Effective fire support requires synchronization of each Service arm.

I.Description

A JAAT operation is a coordinated attack by rotary-wing units and fixed-wing aircraft normally supported by mortars, artillery, or naval surface fire support. Ground or airborne EW systems may also support a JAAT. Usually a JAAT is preplanned due to its complexity, but variations can be quickly organized based on the situation and available C2 means. JAATs may also be placed on an ATO.

II.Command and Contr ol

C2 methods differ from Service to Service; however, during a JAAT operation each Service component involved retains OPCON of its respective units. The JAAT provides the maneuver commander with a flexible force. A massed, moving armored formation in the open provides one example of a lucrative target for a JAAT. In such an operation, the supported commander is responsible for the synchronization of maneuver and fires.

III.Characteristics

A JAAT operation can engage the enemy in the friendly rear area or strike targets deep in enemy territory. Regardless of the target location, a JAAT is most effective and survivable when all elements coordinate their attack.

IV.Elements and Roles

a. **Command Elements**

- The ground maneuver commander determines location and timing to employ a JAAT, requests the assets, and integrates the JAAT with other combat units and supporting fires into the battle plan.
- The aviation commander coordinates the JAAT and makes the tactical plan.
- The air mission commander executes the JAAT engagement.
- The aviation commander and the air mission commander may be the same person.

b. **Helicopter Elements.** Attack helicopters provide fires, target acquisition, mission coordination, and mutual defense. These aerial maneuver units are capable of rapid reaction and are not restricted by terrain.

c. **Fixed-Wing Elements.** Navy, Marine, and Air Force assets provide fires, mutual defense, mission coordination and targeting, and situational awareness to JAAT forces. A forward air controller may be used to facilitate airborne coordination. The controller may also request a spontaneous JAAT when appropriate. These assets can achieve a synergistic effect when combined with attack helicopters and indirect fire support assets.

d. **Indirect Fire Support.** Indirect fire support assets augment the firepower of JAAT operations. Indirect fire roles will include close-in fires, fires in-depth, and counterfire missions. They employ the same request, planning, coordination, control, and execution procedures used to support ground operations. Fire support elements could also develop a J-SEAD plan that supports the egress and ingress routes of attacking aircraft. See Joint Pub 3-01.4, "JTTP for Joint

Suppression of Enemy Air Defenses (J-SEAD)," for further information. Airspace coordination is required to allow for indirect fires and aircraft to attack simultaneously. Forward observers, with laser-designating capabilities, could also be placed forward to designate targets for the JAAT.

e. **Electronic Warfare Elements.** Using nonlethal fires, EW assets augment the lethal firepower of the JAAT operations. Forces can use detectors, direction finders, and jammers to locate hostile emitters and target them for lethal or nonlethal fires attack. These EW attacks aid in the ingress and egress of rotary-wing and fixed-wing JAAT assets as well as limit the enemy's ability to react to the attack by jamming his command, control, and communications and air defense nodes.

V. Missions

Joint fire support missions are often interrelated with other attacks. A JAAT mission typically entails a complex series of interdependent actions, such as providing J-SEAD support for aircraft during both ingress and egress. J-SEAD involves both aircraft and indirect fire system attacks. Since locations of J-SEAD targets along flight routes are not always known, planners must allow flexibility in timing J-SEAD strikes against previously unknown targets. Integrating J-SEAD with a JAAT mission is further complicated because the trigger events to initiate the JAAT often depend on a specific enemy action.

As illustrated in the JAAT scenario, the coordination and interaction of many different component elements and sections may be required for joint fire support operations. Figure IV-1 illustrates some possible joint fire support engagements (e.g., CAS, attack aviation, NSFS, and artillery).

a. **Available Fire Support. Organic fire support** (e.g., mortars, rockets, aviation, and artillery) **may not be sufficient to support all assigned missions**. As potential fire support shortfalls develop, commanders must prioritize resources, and may request other component assets. The following criteria should be considered by staffs in assessing the adequacy of organic fire support:

- Capabilities and limitations of available assets.
- Criticality of missions assigned to subordinate commands.
- Requirements to support the force as a whole.
- Munitions availability.
- Enemy capabilities.
- The need to support rear area operations.
- Responsiveness of fire support assets.
- Requirements to support execution of branches or sequels to the plan.

b. **Close Air Support. Air requests that support joint fire support can be preplanned or executed as immediate strikes**. See Chapter III of Joint Pub 3-09.3, "JTTP for Close Air Support (CAS)," for details on preplanned and immediate CAS. Preplanned requests are submitted through component channels. These requests originate at any level and are approved or disapproved and consolidated with other requests at successively higher echelons. These requests are submitted in time to meet planning suspenses to prepare the allocation of sorties in the ATO. Immediate requests are those requests not identified in time to meet ATO

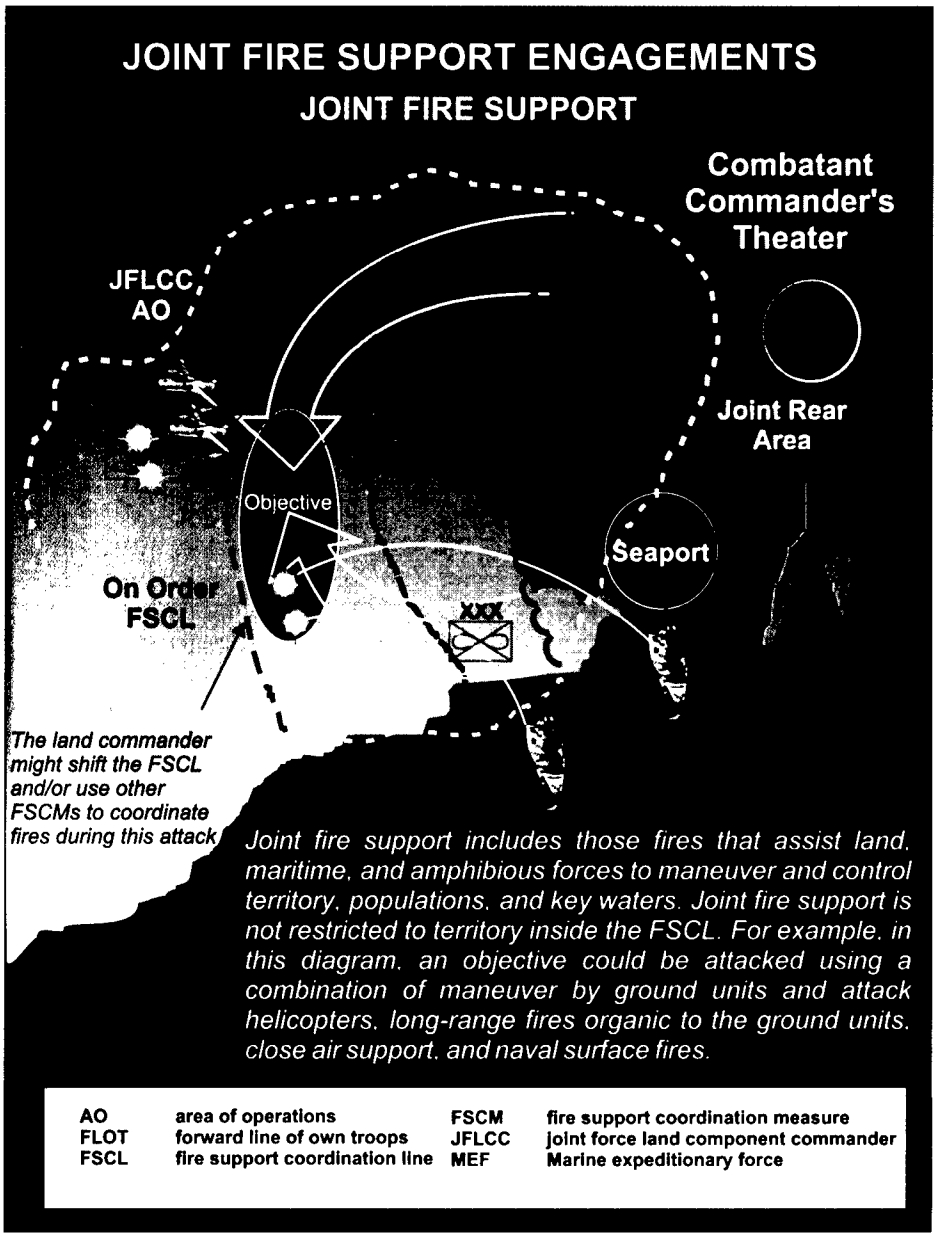


Figure IV-1. Joint Fire Support Engagements

planning suspense; however, these requests can be filled through on-call CAS assets that are tasked in the ATO. If of sufficient priority, immediate requests may be serviced by diverting other joint air missions, or by coordinating for other attack systems. Scheduled joint air missions are diverted from other missions to fulfill these requests as a last resort when on-call missions are unavailable. In accordance with Joint Pub 3-56.1, "Command and Control for Joint Air Operations," a revision to the components allocation decision normally requires JFC approval. However, the JFC may give the JFACC the authority to redirect joint air operations. The JFC or affected component

Air strikes may be either preplanned or immediate.

commanders must approve all requests for redirection of direct support air capabilities and/or forces. (Component direct support air capabilities and/or forces are those air capabilities and/or forces organic to a component that are used by the component to accomplish its assigned mission.) Affected component commanders will be notified by the JFACC upon redirection of joint sorties previously allocated in the joint ATO for support of component operations. During execution, the JAOC is the central agency for revising the tasking of joint air capabilities and/or forces.

- CAS is air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration with the fire and movement of those forces. **Preplanned CAS is subdivided into scheduled and on-call CAS.** Scheduled CAS is specific as to target, time, and final control; on-call CAS requests cover a "window" or block of time when the requesting unit anticipates an enemy engagement or plans a movement. An immediate air support request for CAS could also occur. Refer to Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)," for detailed CAS procedures.

- CAS enhances surface force operations by providing a wide range of weapons effects and massed firepower at decisive points. It can also surprise the enemy and create opportunities for the maneuver of friendly forces. Further, CAS can help protect the flanks of friendly forces, blunt enemy offensives, and protect surface forces during retrograde operations.

- Because of the high value and limited availability of CAS assets, **CAS should not be used as a substitute for the ground commander's organic surface-to-surface fire assets.** CAS is flown against targets chosen by the ground commander and requires positive or procedural controls to achieve desired effects with minimum risk. Other than the CAS provided by components' direct support air capabilities and/or forces, **CAS is an element of joint fire support and is apportioned by the JFC.** Component direct support air operations should be on the ATO for deconfliction purposes. CAS will be scheduled in the ATO or coordinated in real time by the JAOC, in order to ensure deconfliction. The JFACC translates the CAS apportionment decision into an allocation of CAS sorties to supported commands. Supported commands may further distribute their allocated CAS sorties.

- The mission of Army attack aviation is to find, fix, and destroy an enemy force through fire and maneuver. Army attack helicopter units perform a variety of combat missions. They can conduct

deep, independent operations or can be used in conjunction with ground maneuver units in close operations. Attack helicopters are normally employed as a maneuver force, but they may also provide CAS when tasked to support another component. They are ideally suited for fire support when a rapid reaction time is important, or where terrain hinders ground forces. Army attack aviation assets are consolidated into aviation brigades at both division and corps levels. As part of a joint force, these brigades can provide liaison to other components and, when directed by the JFC, execute mission-type orders in support of the joint force. See Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)," for further information on rotary-wing CAS employment.

c. **Fire Support for Amphibious Operations.** An amphibious operation is an attack launched from the sea by naval and landing forces embarked on ships or other craft to land on a hostile or potentially hostile shore. The CATF is a US Navy officer. When the mission of the force is to conduct amphibious operations, the CATF organizes the NTACS to support air operations in the AOA. Marine and/or Army forces, air and ground, are called the landing force and are commanded by the CLF. Refer to Joint Pub 3-02, "Joint Doctrine for Amphibious Operations," for further information.

- **Planning. Initially, the CATF is responsible for coordinating the planning for employment of all supporting arms.** The CATF ensures that coordinated naval gunfire and air support plans are prepared. The CATF also establishes an amphibious task force SACC which plans and coordinates all fires for the task force during the operation. The CLF prepares the fire support plan and determines landing force needs for air, naval surface fire support, field artillery, and mortars. Figure IV-2 depicts the Navy air support execution links that support amphibious operations afloat prior to command being passed ashore. Fire support planners must be aware of the employment considerations and procedures unique to naval surface fires. Refer to Joint Pub 3-02.1, "Joint Doctrine for Landing Force Operations," for further information.

- **Coordination. During amphibious phases of a joint operation, a naval task force provides interface with the land force senior fire support cell through the ship-based SACC.** The SACC is responsible for coordinating all fires during the assault. The SACC staff is augmented with personnel and equipment from the senior landing force fire support facility. To minimize dependence on ship-to-shore communications, landing force units coordinate laterally whenever possible and when fires clearance is required from only one other landing force unit. **When ashore and prepared to do so, the landing force commander assumes responsibility for fire support coordination.** The change in responsibility for fire support coordination is based on pre-established criteria, to include the capability to coordinate all ground and air fires, and is contingent on the decision of the CATF. Often, responsibility for controlling naval surface fires and artillery is phased ashore before the responsibility for controlling aerial delivered fires.

- **Naval Surface Fire Support**

  •• **Tactical Missions.** NSFS missions are normally classified as direct or general support. (1) Direct Support (DS). A ship in DS (normally for a battalion) delivers both planned and on-

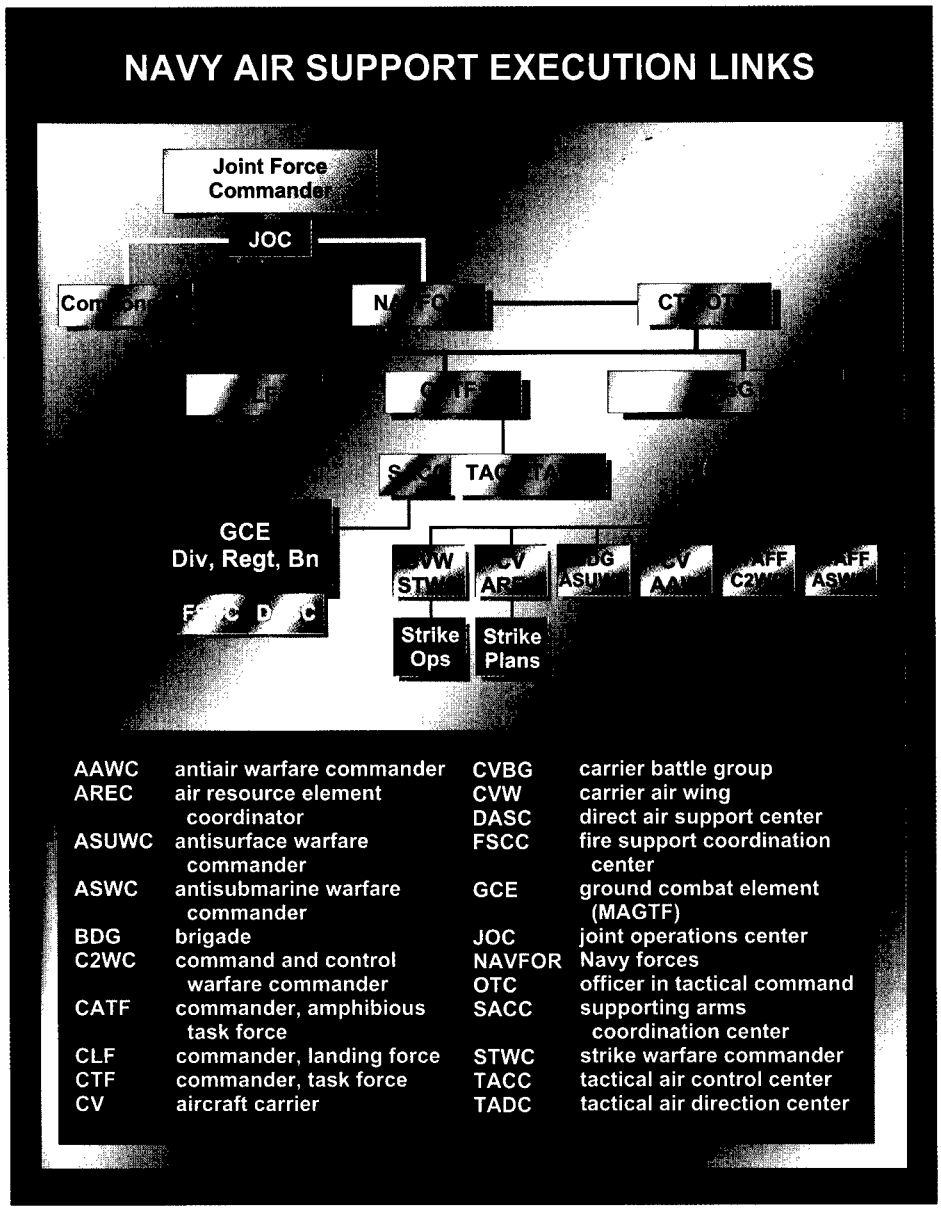


Figure IV-2. Navy Air Support Execution Links

call fire missions. Calls for fires are requested and adjusted by a shore fire control party (FCP) of the supported unit or an air spotter. (2) General Support (GS). GS missions are assigned to ships supporting units of brigade size or larger. Normally, an air observer adjusts the fires of a GS ship or a liaison officer assigns the fires of the ship to a battalion shore FCP.

•• **Support Capabilities.** Naval gunfire support (NGFS) is a subset of NSFS. NGFS selects the most favorable gun-target line within the limits imposed by hydrography. NGFS provides high rates

of fire and a variety of munitions. NGFS produces a high initial velocity and flat trajectory for direct fire against fortifications.

•• **Limitations.** NGFS limitations include: ship-to-shore communications; a changing gun-target line when the ship is underway; and inaccuracies in unobserved fires and initial salvos (especially in areas where navigational aids are lacking or obscured by poor visibility). Firing positions may also be limited by unfavorable hydrographic conditions or the presence of mines. Naval gunfire's flat trajectory is relatively unsuitable for the attack of targets in defiladed positions and restricts the attack of targets close to front-line troops when the gun-target line passes over friendly troops.

•• **Dispersion Patterns.** The dispersion pattern of the naval gun is elliptical, with the long axis of the pattern along the direction of fire. This can be particularly effective when fire is brought against the long axis of the enemy target and allows fire to be brought close to friendly front lines when the gun-target line parallels those lines.

d. **Marine Fire Support.** JFCs have the authority to organize forces to best accomplish the assigned mission based on their concept of operations. Except in unusual situations, Marine Corps forces deploy as a MAGTF. The MAGTF is organized as a complete fighting organization. Refer to Appendix B, "Fire Support Missions," for a discussion on possible fire support missions assigned to Marine Corps forces.

- Army and Marine Corps Service components coordinate indirect fires through the exchange of liaison officers from the Marine artillery unit and the senior Army FSE. The primary mission of this liaison officer is to coordinate Marine Corps indirect surface fires with Army indirect surface fires. A secure communications interface is typically established for the exchange of target information and requests for additional fires by either Army or Marine Corps artillery.

- Army and Marine Corps fire support doctrine is similar, facilitating support by one Service to the other. As a result, the JFC can confidently assign Marine Corps artillery units a tactical mission to support Army ground forces or to reinforce Army artillery; the Army can provide the same support to Marine Corps forces. The supporting artillery units provide required liaison.

- MAGTF aviation is an integral element of each MAGTF used to support MAGTF operations. The MAGTF commander retains OPCON of MAGTF air assets. See the Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," section entitled "Policy for Command and Control of USMC TACAIR in Sustained Operations Ashore."

- Army forces may operate jointly with Marine Corps forces in an AOA where elements of the MACCS provide and control aviation support to Army forces.

e. **Army Fire Support. In the Army, the FSCOORD ensures that all available means of fire support are fully integrated and synchronized with the battle plan.** For example, for an Army corps supporting a joint force operation, the corps artillery commander would typically act as the FSCOORD. The FSE at corps level and below and the FSCOORD are the focal points of Army fire support activities.

- **Organization.** FSEs have a FSCOORD and a supporting staff, but otherwise vary according to the available fire support assets. The air liaison officer will work closely with the FSE. An FSE usually includes representatives from such elements as Army aviation units, EW support elements, Air Force TACP and other representatives as required.

  •• **Echelons Above Corps.** The DOCC performs FSE functions within Army EAC units. The primary functions of the DOCC are situational awareness, planning and coordination targeting, and control of designated fires assets. The DOCC ensures effective and efficient employment of critical assets and facilitates synchronization of joint operations. For example, the DOCC coordinates through the BCD to the JAOC for target nominations.

  •• **Corps and Division.** The FSEs provided at the corps and division levels are similar in structure. Both are located in the main and tactical command posts and in rear tactical operations centers.

  •• **Brigade and Battalion.** The FSCOORD at brigade level is usually the commander of the direct support battalion. The brigade FSCOORD establishes fire support organizations in each maneuver battalion and company. The FSEs at brigade and battalion are located in the maneuver TOC.

  •• **Company.** The fire support organization at company level is the fire support team (FIST). The FIST is headed by the company FSO, who is also the company FSCOORD. Field artillery and mortars provide the primary fire support to the company. The FIST coordinates these assets and, when available, coordinates CAS and naval resources through the appropriate agencies. The FIST also provides forward observer capabilities to the company. The combat observation lasing team can also play a part in coordinating requests for fire support.

- **Marine Corps and Army Similarities.** Below brigade (Army) and regiment (Marine Corps), FSEs and FSCCs are virtually identical, as are the fire support execution methods and data processing equipment used. Figure IV-3 depicts a typical flow for Army fire support mission requests.

f. **Special Operations.** Fire support plays an integral role in SO particularly for direct-action missions. Therefore, SO fire support

FIRE SUPPORT

A USMC OV-10 observation aircraft spotted an Iraqi artillery post in southern Kuwait that had been harassing Coalition troops in Saudi Arabia. The plane relayed the coordinates to *USS Wisconsin* which silenced the enemy emplacement with 16-inch shells. The emplacement was hit at an estimated range of 19 miles from the *USS Wisconsin*. After the shelling the pilot of the OV-10 reported back "Artillery destroyed."

SOURCE: Intelligence Officer, *USS Wisconsin*
(Quoted in DOD Final Report to Congress,
Conduct of the Persian Gulf War, April 1992)

must meet the basic fire support tasks: support forces in contact; support the concept of operation; synchronize fire support; and sustain fire support operations. However, the missions, assets, and environments in which these units operate may be very different from conventional operations. **For TA, SOF depend almost exclusively on high-level imagery intelligence, signals intelligence, and HUMINT sources.** Because ground-based systems are not always available, SOF often depend primarily on armed fixed- and rotary-wing aircraft. In addition, due to the clandestine nature of these operations, EW and PSYOP play major roles.

- SO fire support assets penetrate and deliver ordnance in a precise manner in all types of terrain and conditions to destroy high-value and time-sensitive targets. Most are outfitted with terrain-following and/or terrain avoidance radars, precision navigation systems, defensive avionics, and an extended range refueling capability. They are designed to achieve effects on target while minimizing collateral damage and avoiding fratricide.

- As with conventional operations, **the SO commander is also responsible for**

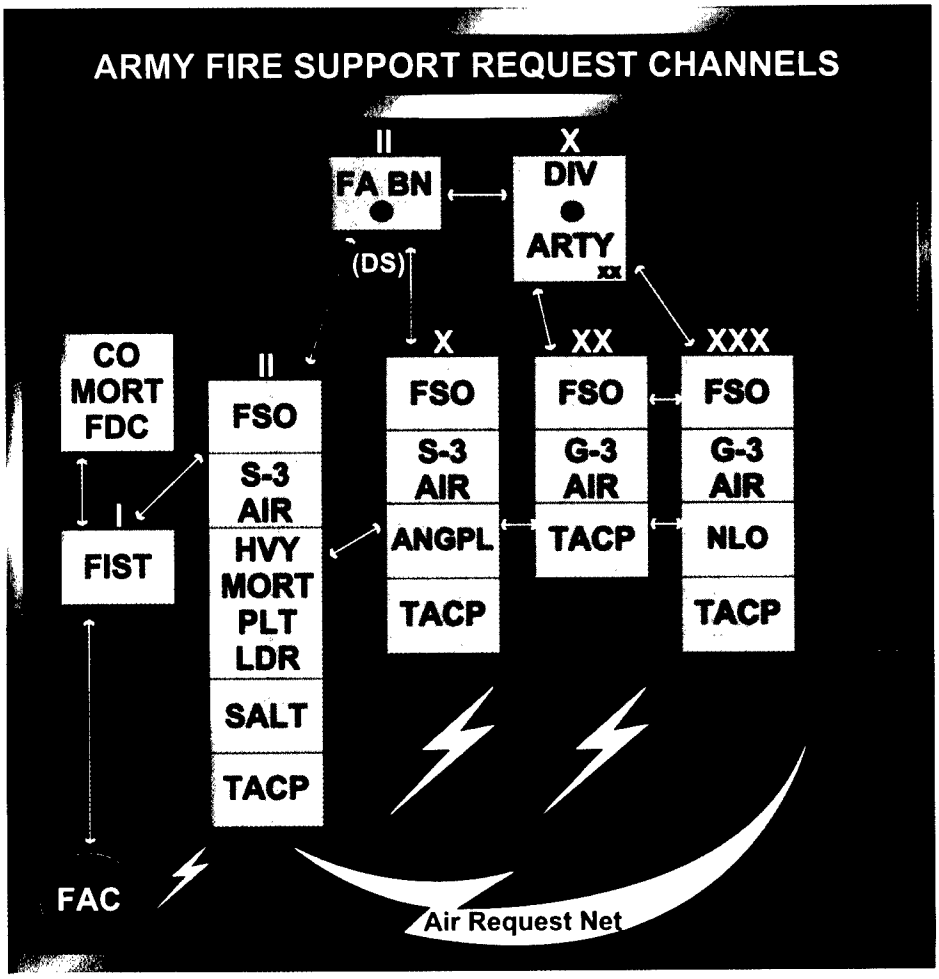


Figure IV-3. Army Fire Support Request Channels

synchronizing maneuver and fire support. As discussed in Chapter II, "Joint Fire Support System," the coordination of supporting arms with maneuver falls under the purview of the operations officer G-3 and/or J-3. The SO fire support responsibilities also fall under the general staff supervision of the G-3 and/or J-3. The FSO's duties in these units are very similar to those associated with conventional operations. See Joint Pub 3-05.3, "Joint Special Operations Operational Procedures," and Joint Pub 3-05.5, "Joint Special Operations Targeting and Mission Planning Procedures," for further information.

3. Flexibility

Joint fire support must be flexible and dynamic enough to support changing requests and demands for support. Typically, the established fire support C2 liaison elements communicate directly among components and pass requests as appropriate to the joint force staff through liaison links. Arrangements for the handling of requests are determined either through prior planning or adjustments during the operation itself. For example, Multiple Launch Rocket System firing units may be earmarked to provide ATACMS support against targets of opportunity during a JAAT mission.

4. Target Hand-off

Various sources may find targets of opportunity during acquisition efforts. If these are HPTs, the acquisition system operator passes the information immediately to the C2 element of the commander within whose operational area the target is located, or to the appropriate intelligence element for further analysis and dissemination. If the target is not an HPT, it is passed as order-of-battle information for further analysis and dissemination as appropriate. Limited acquisition and attack systems should not be distracted by non-HPTs.

a. **Targets of opportunity are often acquired by airborne platforms, SOF, or national systems.** Depending on the sensor, acquisition information is either processed on board or transmitted to a processing system to determine the nature of the target. The joint intelligence center or joint intelligence support element will have appropriate intelligence terminal connectivity to associated processing systems such as the electronic processing and dissemination system, imagery processing and dissemination system, and JSTARS ground station module (See Joint Pub 2-01, "Joint Intelligence Support to Military Operations").

b. In-flight reports are another source of target information. Information on critical targets of opportunity must be passed to the responsible command immediately. The JAOC, ASOC, ABCCC, JSTARS, AWACS, and radar sites monitor in-flight reports and can expedite target information to the appropriate ground commander via the component liaison links.

c. **Timely response is key to successful target attack.** To respond quickly, elements such as the BCD could be given the authority to coordinate directly with the AOC and/or JAOC for attack of located HPTs. The BCD stays abreast of the operational situation and provides information reports to its higher headquarters. If the BCD, or any other element, directs attack of targets of opportunity, the affected commander must be informed of the attack.

5. Fratricide Prevention

Fire support from friendly forces have contributed to fratricide in every modern conflict.

a. **Major procedural components for safe delivery of fire support.** Procedural

protection of friendly units, friendly aircraft, equipment, and personnel from friendly indirect fires is a process with **two major components: (1) technical control, primarily at the weapon; and (2) fire support coordination, primarily at the command center**. Technical aspects of weapons delivery must be applied to ensure that fires fall at the time and place intended. Fire support must be thoroughly coordinated to ensure known or likely friendly force locations are not targeted. Minor errors can result in fratricide and devastate morale and combat effectiveness of entire units. Leaders of the maneuver force and the fire support team must be aware of the potential problems. They must incorporate measures to prevent fratricide during planning and execution of all tactical operations. Additionally, the observer's knowledge of the inherent characteristics of a supporting arm is vital to safeguarding friendly forces. For example, in naval gunfire missions, the responsibility for placement of the first salvo and all subsequent adjustment rests with the observer, not the ship. The observer must recognize that the naval gun produces an elongated dispersion pattern along the gun target line.

b. **Types of Errors.** There are six common types of errors associated with conventional fire support systems.

- **Target Misidentification.** Determining the identity of the target leads directly to the decision to engage. Misidentification (by human or mechanical sources) can be a cause for engaging the wrong target. For example, a laser seeker and/or tracker could identify the laser source instead of the target.

- **Location.** Determining the target location inaccurately can be a cause of engaging the wrong target. Likewise the failure to know the location of friendly forces is a significant contributing factor in fratricide incidents.

- **Computational.** Errors in computation can be of two forms; errors in numeric calculation caused by erroneous data (e.g., weapon muzzle velocity, inertial navigation initialization) or simple mathematical errors, or errors of omission, which are failures to consider all required parameters (e.g., datum conversions) when performing firing computations.

- **Weapon.** Weapon errors are those caused by the crew failing to orient the weapon or prepare ammunition correctly.

- **Communication.** Communication errors are those which occur when otherwise correct data does not reach the intended recipient. The entire fires process depends on reliable communications between observer, command post, and weapon.

- **Mechanical Malfunction.** Damage, age, or unforeseeable events can cause ammunition and weapons systems to malfunction, resulting in premature detonation or unguided flight. Commanders and planners should consider these events when selecting employment locations, considering trajectories, or selecting weapons types for employment.

c. **Avoiding Error. The errors above are avoided with constant checking by supervisors at each element. In reducing the risk of fratricide, primary concerns are errors in target location and target identification.**

- Current technology offers the potential to significantly reduce target location errors. For example, automatic position locating and navigating systems and laser range finders can minimize such errors.

- The problem of correct target identification is complicated by the large

array of sensor systems employed to generate targets for unobserved fires. Sensor systems do not always have the capability to identify ownership of the weapon whose projectile they have tracked. Similar target identification problems exist for sound ranging and thermal imaging. Multiple sensor acquisition and procedural control measures help to reduce the risk of fratricide when engaging deep targets without direct identification.

- Particular attention needs to be paid to the problems associated with smart munitions and remotely delivered mines. Once employed, remotely delivered mines introduce a unique potential for fratricidal errors such as mines scattered beyond the intended location. These weapon systems require particular attention to reduce fratricide risk.

d. **Causes of Air-to-Ground Fratricide.** Though occasionally the result of malfunctioning weapons, air-to-ground fratricide has often resulted from confusion on the battlefield. Battlefield confusion contributes to **misidentification of targets, location errors, target locations incorrectly transmitted or received, and loss of situational awareness by terminal controllers, aircrews, or requesters.** It is critical for all participants in the air-to-ground process to realize that they can inadvertently cause friendly fire incidents.

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APPENDIX A
CONTROL AND COORDINATION MEASURES

1. Fire Support Coordinating Measures

Locations and implementing instructions for FSCMs are disseminated electronically by message, data base update, and/or overlay through both command and fire support channels to higher, lower, and adjacent maneuver and supporting units. Typically they are further disseminated to each level of command, to include the establishing command and all concerned fire support agencies. Not all measures may apply to a joint operation. However, knowledge of the various FSCMs used by each Service is necessary for the effective use of fire support.

a. **Planning and Coordination Considerations.** The establishment or change of an FSCM established by the ground commander is typically initiated through the J-3, G-3, and/or S-3 operations cell and ultimately approved by the appropriate commander (See Chapter III, "Planning and Coordination"). FSCMs enhance the expeditious attack of targets, protect forces, populations, critical infrastructure, and sites of religious or cultural significance, and set the stage for future operations. Commanders position and adjust FSCMs consistent with the operational situation and in consultation with superior, subordinate, supporting, and affected commanders. The operations cell informs coordination elements of the change and effective time. Conditions which dictate the change of FSCMs are also coordinated with the other agencies and components as appropriate. As conditions are met, the new FSCM effective time can be projected and announced. Following direction to execute the change, the operations cell should confirm with all liaison elements that the FSCM changes have been disseminated. This ensures that affected units are aware of new FSCM locations and associated positive control measures are being followed, and also reduces risk of fratricide.

b. **STANAG 2099 and Quadripartite Standardization Agreement 531.** Some FSCMs described here have not yet been agreed to by NATO and American, British, Canadian, and Australian allies. Before commencing operations both joint force and component staff members must verify the status of FSCMs in a multinational operation.

2. Permissive Measures

a. **Coordinated Fire Line**

- **Purpose.** The coordinated fire line (CFL) is a line beyond which conventional surface fire support means (both direct and indirect systems) may fire at any time within the boundaries of the establishing headquarters without additional coordination. The purpose of the CFL is to expedite the surface-to-surface attack of targets beyond the CFL without coordination with the ground commander in whose area of operation the targets are located.

- **Establishment.** The CFL is usually established by a brigade or division commander equivalent, but it can also be established, especially in amphibious operations, by a maneuver battalion. It is located as close to the establishing unit as possible without interfering with the maneuver forces. There is no requirement for the CFL to be placed on identifiable terrain. However, additional considerations include the limits of ground observation, the location of the initial objectives in the offense, and the requirement for maximum flexibility in

both maneuver and the delivery of supporting fires. Subordinate CFLs may be consolidated by higher headquarters.

- **Graphic Portrayal.** The CFL is graphically portrayed by a dashed black line, with "CFL" followed by the establishing headquarters above the line and the effective date-time group (DTG) below the line (Figure A-1).

b. **Fire Support Coordination Line**

- **Purpose.** FSCLs facilitate the expeditious attack of targets of opportunity beyond the coordinating measure. An FSCL does not divide an AO. The FSCL applies to all fires of air, land, and sea-based weapon systems using any type of ammunition against surface targets (Figure A-2).

- **Establishment.** An FSCL is established and adjusted by the appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. The FSCL is a term oriented to air-land operations; there is no similar term used at sea. If possible, the FSCL should follow well-defined terrain features to assist identification from the air. In amphibious operations the FSCL is normally established by the CLF after coordination with the CATF. Changes to the FSCL require notification of all affected forces within the AO and must allow sufficient time for these forces and/or components to incorporate the FSCL change. Generally 6 hours is adequate in order to coordinate an FSCL change. Whenever possible, restrictive measures are employed by commanders to enhance the protection of friendly forces operating beyond the FSCL — measures such as restrictive fire areas (RFAs) and no-fire areas (NFAs).

- **Graphic Portrayal.** The FSCL is graphically portrayed by a solid black line extending across the assigned areas of the establishing headquarters. The letters "FSCL" are followed by the establishing headquarters above the line and the effective DTG below the line. FSCLs do not have to follow "traditional" straight-line paths. Curved and/or enclosed FSCLs have applications in nonlinear joint operations (Figure A-1).

- **Employment.** Use of an FSCL is not mandatory. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide, both in the air and on the ground. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and waste limited resources. Short of an FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. This control is exercised through the operations staff or with predesignated procedures. The FSCL is not a boundary — the synchronization of operations on either side of the FSCL is the responsibility of the establishing commander out to the limits of the land or amphibious force boundary. The establishment of an FSCL does not create a "free-fire area" (FFA) beyond the FSCL. When targets are attacked beyond an FSCL, supporting element's attacks must not produce adverse effects on or to the rear of the line. Attacks beyond the FSCL must be consistent with the establishing commander's priorities, timing, and desired effects and deconflicted whenever possible with the supported headquarters.

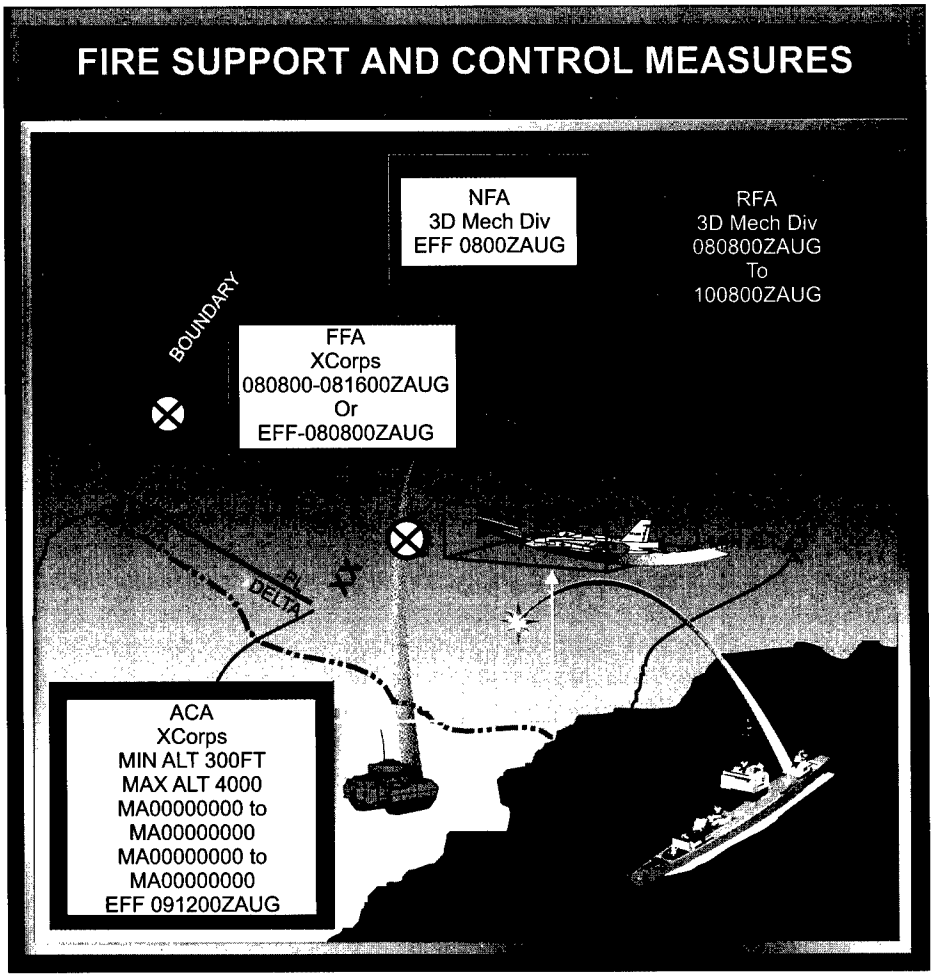

Figure A-1. Fire Support and Control Measures

- **Considerations.** The decision on where to place or even whether to use an FSCL requires careful consideration. If used, its location is based on estimates of the situation and concept of operations. Location of enemy forces, anticipated rates of movement, concept and tempo of the operation, organic weapon capabilities, and other factors are all considered by the commander. The FSCL is normally positioned closer to the forward line of own troops in the defense than in the offense; however, the exact positioning depends on the situation. Placing the FSCL at greater depths will typically require support from higher organic headquarters and other supporting commanders.

  •• Air strikes short of the FSCL (both CAS and air interdiction [AI]) must be under positive or procedural control to ensure proper clearance of fires (e.g., forward air controllers, TACPs). Ground commanders must consider the need for extra control measures. Also, when the FSCL is positioned at greater depth, there is greater requirement for detailed coordination with the establishing commander.

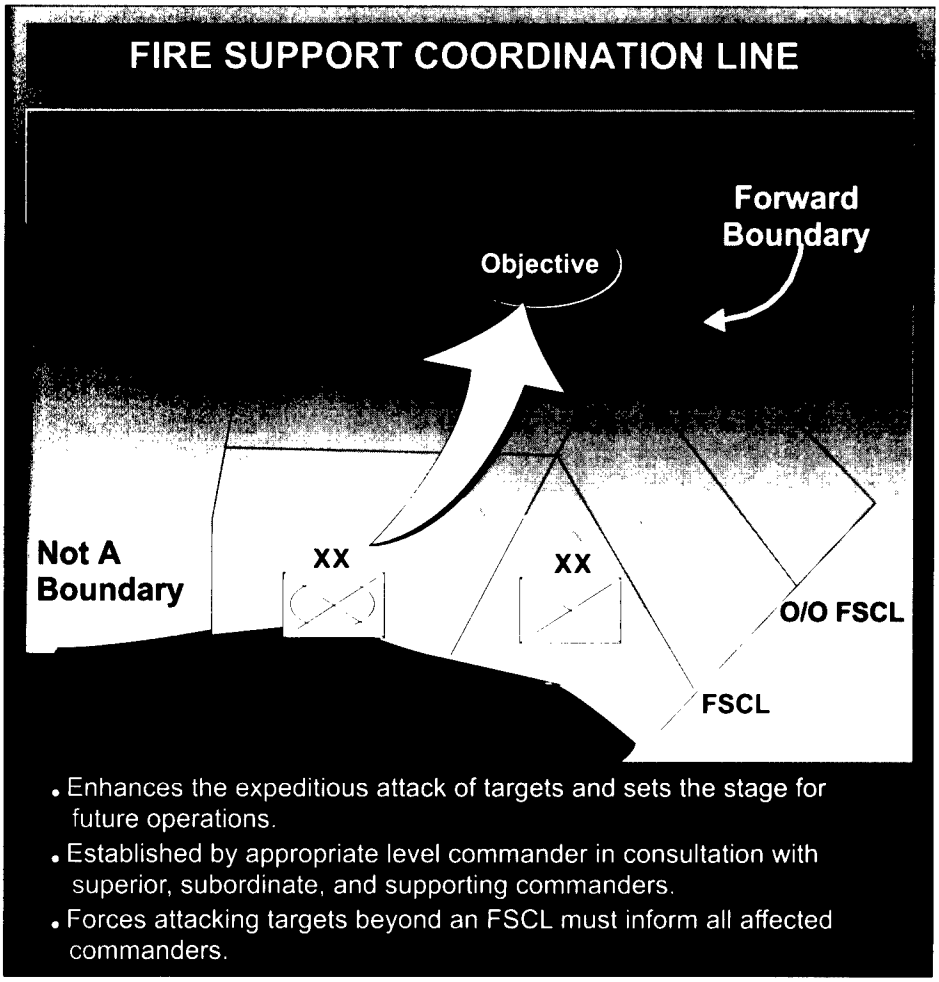

Figure A-2. Fire Support Coordination Line

•• By establishing an FSCL close in yet at sufficient depth so as to not limit high-tempo maneuver, land or amphibious force commanders ease the coordination requirements for attack operations within their AOs by forces not under their control, such as NSFS or AI.

•• Coordination of attacks beyond the FSCL is especially critical to commanders of air, land, and SOF units operating beyond the FSCL. Such coordination is also important when attacking forces are employing wide-area munitions or those with delayed effects. Finally, this coordination assists in avoiding conflicting or redundant attack operations.

•• The establishing commander adjusts the location of the FSCL as required to keep pace with operations. In high-tempo maneuver operations, the FSCL may change frequently. A series of pre-disseminated on-order FSCLs will help accelerate the coordination required. The establishing commander quickly transmits the change to higher, lower, adjacent, and supporting headquarters to ensure attack operations are

appropriately coordinated by controlling agencies. Anticipated adjustments to the location of the FSCL are normally transmitted to other elements of the joint force sufficiently early to reduce potential disruptions in their current and near-term operations. Careful planning and coordination is essential for changes to the FSCL. This planning is necessary to minimize the risk of fratricide and avoid disrupting operations.

•• Varying capabilities for acquisition and attack may exist among adjacent commanders in a multi-corps environment or multinational operation. Normally, corps level commanders may establish an FSCL to support their operations. Layered FSCLs and multiple, separate, non-contiguous corps and/or MEF FSCLs positioned at varying depths create a coordination and execution challenge for supporting commanders (e.g., tracking effective times, lateral boundaries, and multiple command guidance). In cases such as these when the components share a mutual boundary, the JFC or joint force land component commander may consolidate the theater and/or JOA operational requirements of subordinates to establish a single FSCL. This FSCL may be non-contiguous, to reflect the varying capabilities of subordinate commands. A single FSCL facilitates air support, accommodates subordinate deep operations requirements, and eases coordination of FSCL changes.

c. **Free-Fire Area**

- **Purpose.** An FFA is a specific designated area into which any weapon system may fire without additional coordination with the establishing headquarters. It is used to expedite fires and to facilitate emergency jettison of aircraft munitions.
- **Establishment.** An FFA may be established only by the military commander with jurisdiction over the area (usually, a division or higher commander). Preferably, the FFA should be located on identifiable terrain; however it may be designated by grid coordinates.
- **Graphic Portrayal.** The FFA is graphically portrayed by a solid black line defining the area and the letters "FFA" within, followed by the establishing headquarters and the effective DTG (Figure A-1).

3. Restrictive Measures

a. **Restrictive Fire Line**

- **Purpose.** The restrictive fire line (RFL) is a line established between converging friendly forces — one or both may be moving — that prohibits fires or the effects of fires across the line without coordination with the affected force. The purpose of the line is to prevent fratricide and duplication of attacks by converging friendly forces.
- **Establishment.** The commander common to the converging forces establishes the RFL. It is located on identifiable terrain when possible. In link-up operations, it is usually closer to the stationary force to allow maximum freedom of action for the maneuver and fire support of the linkup force.
- **Graphic Portrayal.** The RFL is graphically portrayed by a solid black line, with "RFL" followed by the establishing headquarters above the line and the effective DTG below the line (Figure A-3).

b. **No-Fire Area**

- **Purpose.** The purpose of the NFA is to prohibit fires or their effects into an area. There are two exceptions:

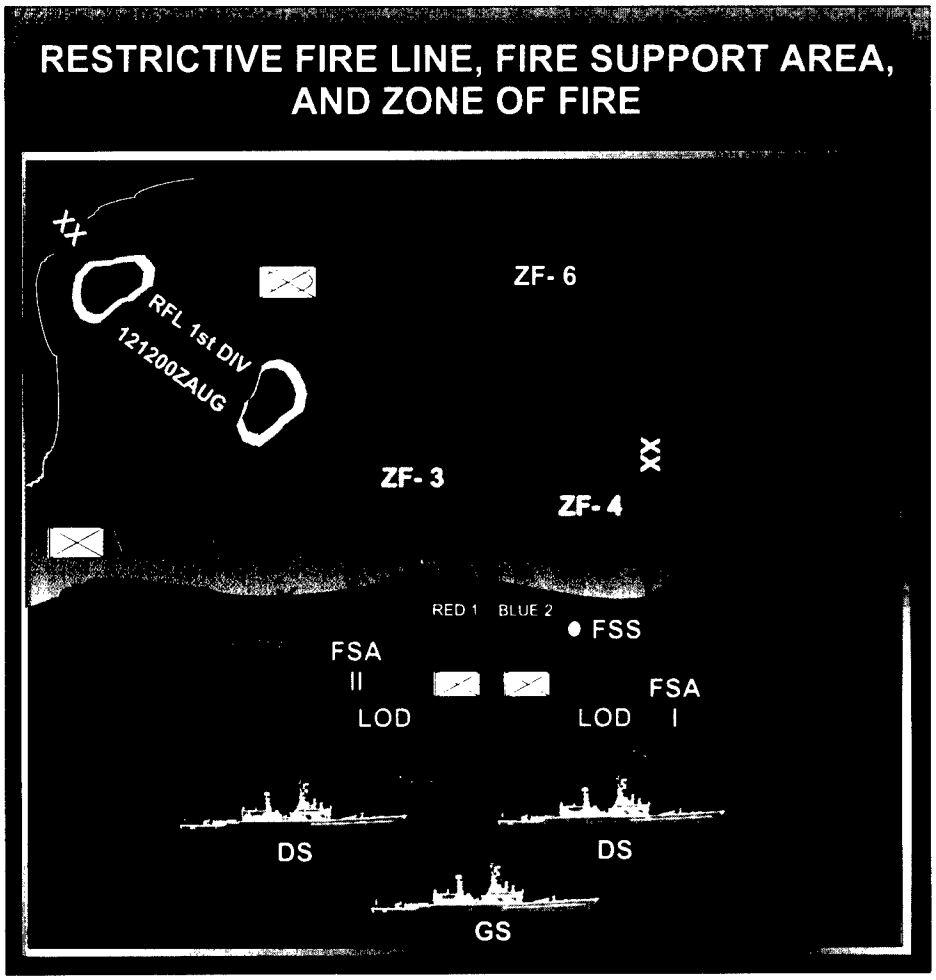

Figure A-3. Restrictive Fire Line, Fire Support Area, and Zone of Fire

•• When the establishing headquarters approves fires within the NFA on a mission-by-mission basis.

•• When an enemy force within the NFA engages a friendly force and the engaged commander determines there is a requirement for immediate protection and responds with the minimal force needed to defend his force.

- **Establishment.** Usually, a division or corps equivalent establishes an NFA. If possible, the NFA is established on identifiable terrain. It may also be located by grid or by a radius from a center point.
- **Graphic Portrayal.** The NFA is graphically portrayed as an area outlined with a solid black line with black diagonal lines inside. The letters "NFA" are within, followed by the establishing headquarters and the effective DTG (Figure A-1).

c. **Airspace Coordination Area.** The airspace coordination area (ACA) is the primary FSCM which reflects the coordination of airspace for use by air support and indirect fires.

- **Purpose.** ACAs are used to ensure aircrew safety and the effective use of

indirect supporting surface fires by deconfliction through time and space. The ACA is a block or corridor of airspace in which friendly aircraft are reasonably safe from friendly surface fires. A formal ACA (a three dimensional box of airspace) requires detailed planning. More often an informal ACA is established using time, lateral separation, or altitude to provide separation between surface-to-surface and air-delivered weapon effects. For additional information on the ACA see Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)," and Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone."

- **Establishment.** The airspace control authority establishes formal ACAs at the request of the appropriate ground commander. ACAs require detailed planning. Though not always necessary, formal ACAs should be considered. Vital information defining the formal ACA includes minimum and maximum altitudes, a baseline designated by grid coordinates at each end, the width (on either side of the baseline), and the effective times. When time for coordination is limited, an informal ACA is used. In an informal ACA, aircraft and surface fires may be separated by time or distance (lateral, altitude, or a combination of the two). The informal ACA can be requested by the maneuver commander requesting CAS or employing helicopters, and is approved at battalion or higher level. Both types of ACAs are constructed with the assistance of the air liaison officer to ensure they meet the technical requirements of the aircraft and weapon systems.

- **Graphic Portrayal.** A formal ACA is shown as an area enclosed by a solid black line. Depicted inside the enclosed area are "ACA," the establishing headquarters, the minimum and maximum altitudes, the grid coordinates for each end of the baseline, and the effective DTG or the words "on order." Informal ACAs are not normally displayed on maps, charts, or overlays (Figure A-1).

d. **Restrictive Fire Area**

- **Purpose.** An RFA is an area where specific restrictions are imposed and in which fires (or the effects of fires) that exceed those restrictions will not be delivered without coordination with the establishing headquarters. The purpose of the RFA is to regulate fires into an area according to the stated restrictions.

- **Establishment.** A maneuver battalion or higher echelon normally establishes an RFA. Usually, the RFA is located on identifiable terrain, by grid, or by a radius from a center point. To facilitate rapidly changing operations, on-call RFAs may be used. The dimensions, locations, and restrictions of the on-call RFA are prearranged.

- **Graphic Portrayal.** The RFA is graphically portrayed by a solid black line defining the area and the letters "RFA" within, followed by the establishing headquarters and the effective DTG. The restrictions may be included within the graphic if space allows, or reference may be made to a specific OPORD or OPLAN (Figure A-1).

e. **Zone of Fire**

- **Purpose.** A zone of fire is an FSCM usually used during amphibious operations and includes the area within which a designated ground unit or fire

support ship delivers, or is prepared to deliver, fire support. Fire may or may not be observed. Land is divided into zones of fire which are assigned to gunfire support ships and units as a means to coordinate their efforts with each other and with the scheme of maneuver of the supported ground unit. Units and ships assigned zones of fires are responsible for attacking known targets and targets of opportunity according to their mission and the guidance of the supported commander.

- **Establishment.** The commander of the naval task force providing naval surface support establishes and assigns zones of fire for the forces. The zone of fire for an artillery battalion or a ship assigned the mission of DS normally corresponds to the AO of the supported unit. The zone of fire for an artillery battalion or a ship assigned the mission of GS should be within the boundaries of the supported unit. When used in conjunction with naval gunfire, the size and shape of a zone of fire will depend on the following:

  •• **Boundaries of Zone of Fire.** In order to permit ready identification by the spotter and the individual fire support ship, the boundaries of the zones of fire should be recognizable both on the terrain and on a map. It may be necessary to divide a large zone of fire into two or more smaller zones due to considerations discussed below. The boundaries of zones of fire of DS ships should correspond to the zones of action of the landing force units supported.

  •• **Size.** The size of each zone should be such that the fire support ships, or ships assigned to observe and/or destroy targets, will be able to accomplish the mission in the time allocated. When zones of fire are delineated, known or suspected targets scheduled for destruction in each zone are plotted, and then the number and type of targets are compared to the capability of the ship.

  •• **Visibility.** Observation from seaward is a desirable feature for zones of fire, since it permits a ship to deliver more accurate and rapid fire.

  •• **Accessibility to Fire.** The zones of fire must be accessible to the trajectory of the fire support ship(s) assigned to the zone.

- **Graphic Portrayal.** Zones of fire are delineated by the use of broken lines (solid lines if unit boundaries are used) and are designated by Arabic numerals, e.g., "ZF3" (Figure A-3).

4. Maneuver Control Measures

a. **Boundaries**

- **Purpose.** A boundary is a maneuver control measure. In land warfare, it is a line by which surface AOs between adjacent units and/or formations are defined. Boundaries designate the geographical limits of the AO of a unit. Within their own boundaries, units may execute fire and maneuver without close coordination with neighboring units unless otherwise restricted. **Normally units do not fire across boundaries unless the fires are coordinated with the adjacent unit or the fires are beyond an FSCM, such as a CFL.** These restrictions apply to conventional and special munitions and their effects. When fires such as smoke and illumination affect an adjacent unit, coordination with that unit is normally required. A commander can, in certain situations, decide to fire across boundaries at positively identified enemy elements without coordination. However, direct and observed fires

should be used when firing across boundaries at positively identified enemy forces when there is no time to coordinate with adjacent friendly units.

- **Establishment and/or Portrayal.** Any commander given an AO can establish boundaries for subordinate units. These boundaries will be respected by all Service and functional components. Boundaries are depicted as solid black lines with a symbol placed on the boundary to show the size and designation of the highest echelons that have the boundary in common. If the units are of unequal size, the symbol of the higher unit is shown and the designation of the lower unit is given completely (Figure A-1).

b. **Phase Lines**

- **Purpose.** A phase line (PL) is a maneuver control measure used by land forces for control and coordination of military operations. It is usually a recognizable terrain feature extending across the zone of action. Units normally report crossing PLs, but do not halt unless specifically directed. PLs can be used to identify limits of advance, control fires or define an AO. The purpose of each PL and any actions required by forces affected by the PL will be specified on the operation order of the establishing headquarters.

- **Establishment and/or Portrayal.** Any commander given an AO can establish PLs. A PL is depicted as a solid black line labeled "PL" and assigned letters, numbers, or code name designations (Figure A-1).

c. **Fire Support Area and/or Fire Support Station**

- **Purpose.** A fire support area (FSA) is an appropriate maneuver area assigned to fire support ships by the naval force commander from which they deliver surface fire support to an operation ashore. An FSA is normally associated with amphibious operations but can be used whenever it is desirable to have a fire support ship occupy a certain geographic position. A fire support station (FSS) is a specific location at sea within an FSA from which a fire support ship delivers fire. This designation is used to station ships within boat lanes of the assaulting force, or in areas where maneuvering room is restricted by other considerations.

- **Establishment.** The officer in tactical command, typically the CATF, establishes FSAs and FSSs. In amphibious operations when attack groups are formed and separate landing areas are designated, the CATF may assign each attack group commander the responsibility for control of naval gunfire support within the area.

- **Graphic Portrayal.** FSAs are designed with Roman numerals (FSA I, II, III) and are shown on the naval gunfire support operations overlay. FSSs are designated by numbers (FSS 1, 2, 3) and are shown on the NSFS operations overlay as a black dot indicating the exact position of the ship (Figure A-3).

5. Airspace Control Measures

a. **Airspace Control Measures.** ACMs are nominated from subordinate headquarters through component command headquarters, and forwarded to the airspace control authority in accordance with the air control plan. Most ACMs impact on indirect fires trajectories and unmanned reconnaissance aircraft because of their airspace use. Some ACMs may be established to permit surface fires or UAV operations. The component commanders ensure that ACM nominations

support and do not conflict with ground operations prior to forwarding to the JAOC. The airspace control authority approves formal ACM nominations and includes them in the airspace control order (ACO). The airspace control authority consolidates, coordinates, and deconflicts the airspace requirements of the components and publishes the ACMs in the ACO. The ACO is normally published at least daily and is often distributed both separately and as a section of the ATO. See Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone," and Joint Pub 3-56.1, "Command and Control for Joint Air Operations," for further information on C2 of air operations.

b. Normally, ACMs such as low level transit routes will terminate in the vicinity of the FSCL. However, the situation may require establishing active and planned ACMs beyond the FSCL to facilitate rapid change of both the FSCL and ACM. ACMs may be established to facilitate operations between the FSCL and the land force commander's forward boundary. Ground infiltration and aerial insertion and/or extraction of SOF or long-range surveillance teams as well as attack helicopter maneuver are operational examples.

c. Changes to ACMs within a land force AO are initiated by the component's air control element with airspace control authority approval. One common procedural ACM that impacts on the delivery of fire support is a coordinating altitude. A coordinating altitude separates fixed- and rotary-wing aircraft. The JFC approves the coordinating altitude, which is normally specified in the air control plan. The airspace control authority is the final approving authority for changes, which are requested through airspace coordination channels. Fixed- or rotary-wing aircraft planning extended operations penetrating this altitude should, whenever possible, notify the appropriate airspace control facility; however, approval acknowledgment is not required.

APPENDIX B
FIRE SUPPORT MISSIONS

1. Introduction

a. The four basic tasks of joint fire support are to:

- Support forces in contact
- Support the supported commander's battle plan
- Synchronize fire support
- Sustain fire support

b. These four basic tasks serve as unifying factors for the joint fire support system available to the JFC and are supported by four standard joint fire support missions. Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)," provides guidance on command relationships and categories of support. These standard fire support missions assist to standardize internal operations, facilitate task organization, improve communications, and reduce the need for detailed coordination. For example, the Army and Marine Corps usually employ these fire support missions to conduct fire support operations. These four standard fire support missions do not apply to air operations.

- Direct Support
- Reinforcing
- General Support-Reinforcing (GS-R)
- GS

c. The DS mission requires a unit to provide close supporting fire to a specific unit. The GS mission requires a unit to provide support to the force as a whole. A reinforcing mission requires a fire support unit to reinforce, or augment, the fires of another fire support unit which is DS to a specific unit. The DS unit is responsible for supporting the supported commander and the DS unit commanders use the assets of their units and the reinforcing unit to accomplish the mission. The GS-R mission requires a fire support unit to provide GS to the force as a whole and to reinforce the fires of a DS unit as its second priority. Figure B-1 illustrates the inherent responsibilities for each of these missions with a field artillery unit.

d. Non-standard fire support missions may be assigned when flexibility must be maintained because a supported commander's requirements cannot be met or accurately conveyed by one of the standard fire support missions. A non-standard mission amplifies, changes, or limits one or more of the inherent responsibilities of a standard fire support mission. It also may spell out contingencies not covered by those inherent responsibilities. Normally, a DS mission is not modified.

2. Army and Marine Corps

In organizing for combat, both the Army and Marine Corps employ the standard fire support missions to task-organize artillery and mortar fire support for maneuver forces in combat. The Army normally employs attack aviation units as maneuver forces. Refer to Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)," for further information on rotary-wing CAS operations.

INHERENT RESPONSIBILITIES OF FIELD ARTILLERY MISSIONS

AN FA UNIT WITH A MSN OF:	DIRECT SUPPORT	REINFORCING	GENERAL SUPPORT REINFORCING	GENERAL SUPPORT
Answering calls for fire in priority from —	1. Supported unit 2. Own observers/1 3. Force FA HQ	1. Supported unit 2. Own observers 3. Force FA HQ	1. Force FA HQ 2. Reinforced unit 3. Own observers	1. Force FA HQ 2. Own observers
Having as its zone of fire —	Zone of action of supported unit	Zone of fire of reinforced FA	Zone of action of supported unit to include zone of fire of reinforced FA unit	Zone of action of supported unit
Furnishing fire support personnel /2 —	Provides temporary replacements of casualties as required	No requirement	No requirement	No requirement
Furnishing liaison officer —	No requirement /3	To reinforced FA unit HQ	To reinforced FA unit HQ	No requirement /3
Establishing communications with —	FSOs and supported maneuver unit HQ	Reinforced FA unit HQ	Reinforced FA unit HQ	No requirement
Positioning by —	Direct Support FA unit CDR or as ordered by force FA HQ	Reinforced FA unit or as ordered by force FA HQ	Force FA HQ or reinforced FA unit if approved by force FA HQ	Force FA HQ
Planning its fires —	Developing its own fire plan	Reinforced FA unit HQ	Force FA HQ	Force FA HQ

/1 Includes all target acquisition means not deployed with supported unit (radar, aerial observers, survey parties).

/2 An FSS for each maneuver brigade, battalion, and/or cavalry squadron equivalent and one FIST with each maneuver company and/or ground cavalry troop equivalent are trained and deployed by the Army FA unit authorized these assets by tables of organization and equipment. Forward observer (FO) teams are provided by Marine Corps artillery battalions to each company-sized maneuver unit upon deployment. After deployment, FSS, FISTs, and FOs remain with the supported maneuver unit throughout the conflict.

/3 No Army requirement, but for USMC, the requirement is that the supporting unit provide a liaison officer to the supported unit (down to battalion) level.

Figure B-1. Inherent Responsibilities of Field Artillery Missions

3. Naval Surface Fire Support

US Navy ships capable of providing naval gunfire in support of amphibious, maritime, or land forces can be assigned either DS or GS tactical missions. The DS mission establishes a one-to-one relationship between a ship and the supported unit, normally an assault battalion. A ship in DS delivers fires on planned targets and targets of opportunity in the zone of action of its supported unit. The GS mission requires a ship to support the force as a whole or a portion of the force (e.g., a regiment or brigade). A ship in GS attacks targets in the zone of action of the supported unit.

4. Marine Corps and Navy Aviation

The Marine Corps' and the Navy's use of aviation to provide fire support is termed offensive air support (OAS). OAS, which includes deep air support and CAS, may be

provided by both fixed- and rotary-wing aircraft. Normally, aviation units conduct OAS in GS of the MAGTF mission or the mission of its subordinate commands or elements.

5. Air Force

US Air Force missions are organized by military objectives. Air Force CAS missions are joint fire support.

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APPENDIX C
REFERENCES

The development of Joint Pub 3-09 is based upon the following primary references:

1. Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)."

2. Joint Pub 1, "Joint Warfare of the Armed Forces of the United States."

3. Joint Pub 1-02, "DOD Dictionary of Military and Associated Terms."

4. Joint Pub 2-0, "Doctrine for Intelligence Support to Joint Operations."

5. Joint Pub 2-01, "Joint Intelligence Support to Military Operations."

6. Joint Pub 2-01.1, "Joint Tactics, Techniques, and Procedures for Intelligence Support to Targeting."

7. Joint Pub 3-0, "Doctrine for Joint Operations."

8. Joint Pub 3-01, "Joint Doctrine for Countering Air and Missile Threats."

9. Joint Pub 3-01.4, "Joint Tactics, Techniques, and Procedures for Joint Suppression of Enemy Air Defenses (J-SEAD)."

10. Joint Pub 3-01.5, "Doctrine for Joint Theater Missile Defense."

11. Joint Pub 3-02, "Joint Doctrine for Amphibious Operations."

12. Joint Pub 3-02.1, "Joint Doctrine for Landing Force Operations."

13. Joint Pub 3-03, "Doctrine for Joint Interdiction Operations."

14. Joint Pub 3-05, "Doctrine for Joint Special Operations."

15. Joint Pub 3-05.3, "Joint Special Operations Operational Procedures."

16. Joint Pub 3-05.5, "Joint Special Operations Targeting and Mission Planning Procedures."

17. Joint Pub 3-07, "Joint Doctrine for Military Operations Other Than War."

18. Joint Pub 3-09.1, "Joint Laser Designation Procedures."

19. Joint Pub 3-09.3, "Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)."

20. Joint Pub 3-13, "Joint Doctrine for Information Operations."

21. Joint Pub 3-16, "Joint Doctrine for Multinational Operations."

22. Joint Pub 3-18, "Joint Doctrine for Forcible Entry Operations."

23. Joint Pub 3-51, "Electronic Warfare in Joint Military Operations."

24. Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone."

25. Joint Pub 3-53, "Doctrine for Joint Psychological Operations."

26. Joint Pub 3-55, "Doctrine for Reconnaissance, Surveillance, and Target Acquisition (RSTA) Support for Joint Operations."

27. Joint Pub 3-56, "Command and Control Doctrine for Joint Operations."

28. Joint Pub 3-56.1, "Command and Control for Joint Air Operations."

29. Joint Pub 3-60, "Joint Doctrine for Targeting."

30. Joint Pub 5-00.1, "Joint Tactics, Techniques, and Procedures for Campaign Planning."

31. Joint Pub 5-00.2, "Joint Task Force Planning Guidance and Procedures."

32. Joint Pub 6-0, "Doctrine for Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations."

33. CJCSI 3900.01, "Position Reference Procedures."

APPENDIX D
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to the Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

The lead agent for this publication is the US Army. The Joint Staff doctrine sponsor for this publication is the Director for Operational Plans and Interoperability (J-7).

3. Change Recommendations

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GLOSSARY

PART I — ABBREVIATIONS AND ACRONYMS

A2C2	Army airspace command and control
ABCCC	airborne battlefield command and control center
ACA	airspace coordination area
ACM	airspace control measure
ACO	airspace control order
AFFOR	Air Force forces
AI	air interdiction
AO	area of operations
AOA	amphibious objective area
AOC	air operations center (USAF)
ARFOR	Army forces
ARL-M	airborne reconnaissance low-multifunction
ASCS	air support control section
ASOC	air support operations center
ATACMS	Army Tactical Missile System
ATCS	air traffic control section
ATO	air tasking order
AWACS	Airborne Warning and Control System
BCD	battlefield coordination detachment (formerly battlefield coordination element)
C2	command and control
C2W	command and control warfare
C4I	command, control, communications, computers, and intelligence
CAS	close air support
CATF	commander, amphibious task force
CFL	coordinated fire line
CGS	common ground station
CINC	commander in chief
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CLF	commander, landing force
COA	course of action
COG	center of gravity
COMINT	communications intelligence
D3A	decide, detect, deliver, and assess
DASC	direct air support center
DOCC	deep operations coordination cell
DS	direct support
DTG	date-time group

E-8C	joint surveillance, target attack radar system (JSTARS) aircraft
EAC	echelons above corps
EW	electronic warfare
FCP	fire control party
FFA	free-fire area
FFCC	force fires coordination center
FIST	fire support team
FSA	fire support area
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSCOORD	fire support coordinator
FSE	fire support element
FSO	fire support officer
FSS	fire support station
G-3	Army or Marine Corps component operations staff officer (Army division or higher staff, Marine Corps brigade or higher staff)
GCE	ground combat element (MAGTF)
GS	general support
GS-R	general support-reinforcing
HPT	high-payoff target
HUMINT	human intelligence
HVT	high-value target
IEW	intelligence and electronic warfare
IO	information operations
J-3	Operations Directorate of a joint staff
JAAT	joint air attack team
JAOC	joint air operations center
JFACC	joint force air component commander
JFC	joint force commander
JFE	joint fires element
JFSOCC	joint force special operations component commander
JOA	joint operations area
J-SEAD	joint suppression of enemy air defenses
JSOACC	joint special operations air component commander
JSOTF	joint special operations task force
JSTARS	joint surveillance, target attack radar system
JTCB	joint targeting coordination board
JTF	joint task force

MACCS	Marine Air Command and Control System
MAGTF	Marine air-ground task force
MEF	Marine expeditionary force
MOOTW	military operations other than war
MTI	moving target indicator
NATO	North Atlantic Treaty Organization
NFA	no-fire area
NGFS	naval gunfire support
NSFS	naval surface fire support
NSWTG	naval special warfare task group
NSWTU	naval special warfare task unit
NTACS	Navy tactical air control system
OAS	offensive air support
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
PL	phase line
PSYOP	psychological operations
RFA	restrictive fire area
RFL	restrictive fire line
ROE	rules of engagement
RSTA	reconnaissance, surveillance, and target acquisition
S-3	battalion or brigade operations staff officer (Army; Marine Corps battalion or regiment)
SACC	supporting arms coordination center
SAR	synthetic aperture radar
SFCP	shore fire control party
SO	special operations
SOCCE	special operations command and control element
SOCOORD	special operations coordination element
SOF	special operations forces
SOLE	special operations liaison element
STANAG	standardization agreement (NATO)
STT	special tactics team
TA	target acquisition
TACC	tactical air command center (Marine Corps); tactical air control center (Navy); tanker airlift control center (Air Force)
TACP	tactical air control party
TACS	Theater Air Control System
TADC	tactical air direction center

TAOC	tactical air operations center (USMC)
TOC	tactical operations center
TTP	tactics, techniques, and procedures
UAV	unmanned aerial vehicle
WGS-84	World Geodetic Systems 1984

PART II — TERMS AND DEFINITIONS

air interdiction. Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (Joint Pub 1-02)

apportionment. In the general sense, distribution for planning of limited resources among competing requirements. Specific apportionments (e.g., air sorties and forces for planning) are described as apportionment of air sorties and forces for planning, etc. (Joint Pub 1-02)

apportionment (air). The determination and assignment of the total expected air effort by percentage and/or by priority that should be devoted to the various air operations and/or geographic areas for a given period of time. (Joint Pub 1-02)

area of operations. An operational area defined by the joint force commander for land and naval forces. Areas of operations do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. (Joint Pub 1-02)

boundary. A line which delineates surface areas for the purpose of facilitating coordination and deconfliction of operations between adjacent units, formations, or areas. (Joint Pub 1-02)

close air support. Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called CAS. (Joint Pub 1-02)

concept of operations. A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called commander's concept. (Joint Pub 1-02)

coordinated fire line. The coordinated fire line (CFL) is a line beyond which conventional, direct, and indirect surface fire support means may fire at any time within the boundaries of the establishing headquarters without additional coordination. The purpose of the CFL is to expedite the surface-to-surface attack of targets beyond the CFL without coordination with the ground commander in whose area the targets are located. Also called CFL. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

coordinating altitude. A procedural airspace control method to separate fixed- and rotary-wing aircraft by determining an altitude below which fixed-wing aircraft will normally not fly and above which rotary-wing aircraft normally will not fly. The coordinating altitude is normally specified in the airspace control plan and may include a buffer zone for small altitude deviations. (Joint Pub 1-02)

electronic warfare. Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support. a. electronic attack. That division of electronic warfare involving the use of electromagnetic, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. electronic protection. That division of electronic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. electronic warfare support. That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to produce signals intelligence, both communications intelligence, and electronic intelligence. (Joint Pub 1-02)

firepower. 1. The amount of fire which may be delivered by a position, unit, or weapon system. (Joint Pub 1-02)

fires. The effects of lethal or nonlethal weapons. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

fire support. Fires that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

fire support area. An appropriate maneuver area assigned to fire support ships by the naval force commander from which they can deliver gunfire support to an amphibious operation. Also called FSA. (This term and its definition modifies the existing term and its definition and are approved for inclusion in the next edition of Joint Pub 1-02.)

fire support coordination. The planning and executing of fire so that targets are adequately covered by a suitable weapon or group of weapons. (Joint Pub 1-02)

fire support coordination center. A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support. (Joint Pub 1-02)

fire support coordination line. A fire support coordination measure that is established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. Fire support coordination lines (FSCLs) facilitate the expeditious attack of surface targets of

opportunity beyond the coordinating measure. An FSCL does not divide an area of operations by defining a boundary between close and deep operations or a zone for close air support. The FSCL applies to all fires of air, land, and sea-based weapon systems using any type of ammunition. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide. Supporting elements attacking targets beyond the FSCL must ensure that the attack will not produce adverse effects on, or to the rear of, the line. Short of an FSCL, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. The FSCL should follow well defined terrain features. Coordination of attacks beyond the FSCL is especially critical to commanders of air, land, and special operations forces. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and could waste limited resources. Also called FSCL. (This term and its definition modifies the existing term and its definition and are approved for inclusion in the next edition of Joint Pub 1-02.)

fire support station. An exact location at sea within a fire support area from which a fire support ship delivers fire. Also called FSS. (Joint Pub 1-02)

free-fire area. A specific area into which any weapon system may fire without additional coordination with the establishing headquarters. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

high-payoff target. A target whose loss to the enemy will significantly contribute to the success of the friendly course of action. High-payoff targets are those high-value targets, identified through wargaming, which must be acquired and successfully attacked for the success of the friendly commander's mission. Also called HPT. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

high-value target. A target the enemy commander requires for the successful completion of the mission. The loss of high-value targets would be expected to seriously degrade important enemy functions throughout the friendly commander's area of interest. Also called HVT. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

interdiction. An action to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces. (Joint Pub 1-02)

joint fires. Fires produced during the employment of forces from two or more components in coordinated action toward a common objective. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

joint fires element. The joint fires element is an optional staff element that provides recommendations to the J-3 to accomplish fires planning and synchronization. Also called JFE. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

joint fire support. Joint fires that assist land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, and key waters. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

joint force commander. A general term applied to a combatant commander,

subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (Joint Pub 1-02)

joint integrated prioritized target list. A prioritized list of targets and associated data approved by a joint force commander, and maintained by a joint task force. Targets and priorities are derived from the recommendations of components in conjunction with their proposed operations supporting the joint force commander's objectives and guidance. Also called JIPTL. (Joint Pub 1-02)

joint targeting coordination board. A group formed by the joint force commander to accomplish broad targeting oversight functions that may include but are not limited to coordinating targeting information, providing targeting guidance and priorities, and preparing and/or refining joint target lists. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. Also called JTCB. (Joint Pub 1-02)

neutralization fire. Fire which is delivered to render the target ineffective or unusable. (Joint Pub 1-02)

no-fire area. A land area designated by the appropriate commander into which fires or their effects are prohibited. Also called NFA. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

no-strike target list. A list designated by a commander containing targets not to be destroyed. Destruction of targets on the list would interfere with or unduly hamper projected friendly military operations, or friendly relations with indigenous personnel or governments. (Joint Pub 1-02)

phase line. A line utilized for control and coordination of military operations, usually a terrain feature extending across the zone of action. Also called PL. (Joint Pub 1-02)

psychological operations. Planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. The purpose of psychological operations is to induce or reinforce foreign attitudes and behavior favorable to the originator's objectives. Also called PSYOP. (Joint Pub 1-02)

restrictive fire area. An area in which specific restrictions are imposed and into which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters. Also called RFA. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

restrictive fire line. A line established between converging friendly surface forces that prohibits fires or their effects across that line. Also called RFL. (This term and its definition are approved for inclusion in the next edition of Joint Pub 1-02.)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (Joint Pub 1-02)

suppressive fire. Fires on or about a weapons system to degrade its performance below

the level needed to fulfill its mission objectives, during the conduct of the fire mission. (Joint Pub 1-02)

targeting. 1. The process of selecting targets and matching the appropriate response to them, taking account of operational requirements and capabilities. 2. The analysis of enemy situations relative to the commander's mission, objectives, and capabilities at the commander's disposal, to identify and nominate specific vulnerabilities that, if exploited, will accomplish the commander's purpose through delaying, disrupting, disabling, or destroying enemy forces or resources critical to the enemy. (Joint Pub 1-02)

zone of action. A tactical subdivision of a larger area, the responsibility for which is assigned to a tactical unit; generally applied to offensive action. (Joint Pub 1-02)

zone of fire. An area into which a designated ground unit or fire support ship delivers, or is prepared to deliver, fire support. Fire may or may not be observed. (Joint Pub 1-02)

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